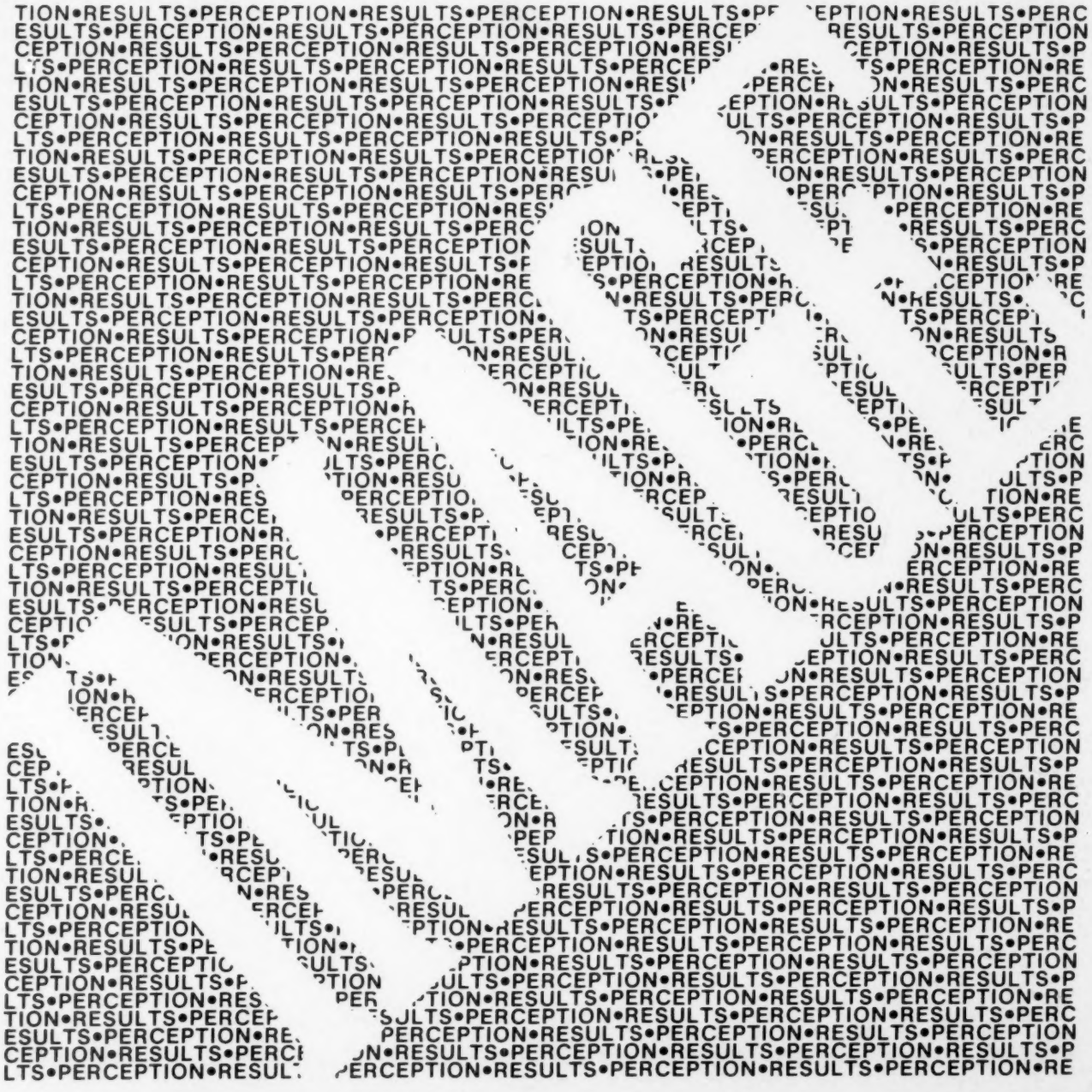
VOL 20 NO 3 AUG 1979

# AIR FORCE engineering & services QUARTERLY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## From the Director

# Image

My "Director's Message" in the May 1979 issue of this magazine centered on "Image: Perceptions and Results." I strongly feel that this topic is one of the keys to the success of the Engineering and Services career field. To this end, the lead article once again focuses on this and is entitled "Image: Its Role in Achieving Total Success." Because of the article's importance and necessary length, it is contained in the body of the magazine and I hope you will give it your careful reading and attention. I will, therefore, use the remainder of this space to report on recent general officer changes and on the Summer 1979 Colonels' assignments. Brig Gen Paul T. Harting is now the Deputy Director of Engineering and Services for Program Management of Israeli Air Base Construction. Replacing him as the DCS/Engineering and Services at HQ MAC, is Brig Gen Allison G. Glover. Brig Gen John E Catlin, Jr, DCS/Engineering and Services, HQ USAFE, pinned on his star on 1 March.

As in the past, the August issue has provided a listing of the current or projected end of summer positions for our Colonels and Colonel-selectees. Because of early publisher deadlines, this list is current as of 15 June 1979. Some changes may have occurred since the list was submitted for publication.

| NAME | POSITION |
|---|---|
| **A** | |
| Ahearn, Joseph A. | USAF/LEEP |
| Alkire, Melvin G. | ATC/DE |
| Allison, Thayer W. | Clark/BCE |
| *Alexander, Gerald F. | AFESC/DEHS |
| Arnau, Robert R. | Scott/BCE |
| Atchley, Jimmy O. | Grand Forks/BCE |
| **B** | |
| Beckwith, Wayne K. | AAC/DE |
| Bohinc, Stanley A. | AWC |
| Bohlen, George A. | ADCOM/DE |
| Bond, Gerald E. | FE Warren/BCE |
| Borowski, Eugene C. | March/BCE |
| Brennecke, Harold J. | Kadena/BCE |
| *Bruenner, William | USAFE/DEH |
| Burgess, Danny N. | Keesler/BCE |
| Byrd, Herman L. | Minot/BCE |
| **C** | |
| **Cafiso, Matthew M. | AFRES/DE |
| Callahan, Joseph T. | Kirtland/BCE |
| Carey, Robert L. | McClellan/BCE |
| Carr, Benny M. | Offutt/BCE |
| Clark, Zack C. | Ramstein/BCE |
| Cole, Earle R. | AFESC/DEM |
| Colosimo, John C. | Andersen/BCE |
| Conry, James M. | USAFE/DEX |
| Cornell, David M. | Barksdale/BCE |
| Correll, Charles A. | MAC/DE-2 |
| Cothran, Thurman D. | ADCOM/DEM |
| Crowley, Francis B. | Griffiss/BCE |
| Cunningham, John T. | AFSC/DE |
| **D** | |
| Daniels. P.J. | Ellsworth/BCE |
| DeLuca, Jerry J. | AFRCE/WR |
| Doran, Donald A. | Beale/BCE |
| **E** | |
| Ellis, George E. | TAC/DE |
| **F** | |
| Ferree, David F. | Norton/BCE |
| *Fike, Tommy F. | TAC/DEH |
| Flowers, Ansel T. | 823RH/Hurlburt |
| Fluhr, Wallace E. | USAFA/Faculty |
| Francis, George F. | ADTC/DE |
| Fullmer, Wayne M. | McChord/BCE |
| *Forby, Willis E. | MAC/DEH |
| **G** | |
| **Gagnon,Raymond C. | NGB/DE |
| Garove, Eugene | Tinker/BCE |
| Garren, Ronald R. | AFSC/DEE |
| Geer, Richard P. | Sheppard/BCE |
| Gennaci, Ignatius J. | AF/SOUTH |
| Gifford, Robert N. | Peterson/BCE |
| Gogal, Robert M. | ICAF |
| Goodwin, Roy M. | TAC/DE-2 |
| *Gormley, Vincent | SAC/DEH |
| Gracey, Robert H. | Maxwell/BCE |
| **H** | |
| Hahn, Arthur P. | USAF/LEEX |
| Halac, Harry E. | SAC/DE-2 |
| Hale, Jerry W. | Holloman/BCE |
| Hampton, John A. | Elmendorf/BCE |
| Harding, Robert C. | Altus/BCE |
| Harlan, Maurice R. | Bolling/BCE |
| Hartmann, Arthur J. | ROK/US-CFC |
| Harty, John R. | MAC/DEM |
| Hicks, James N. | WPAFB/BCE |
| Hobbs, Terrence E. | AFSC/DE-2 |
| Hodge, Ralph | USAFA/DE |
| Hubbard, James | Davis-Monthan/BCE |
| Hurst, Gerald B. | Bergstrom/BCE |
| Husbands, Herman H. | USAFE/DEP |
| **J** | |
| Jarvis, Richard J. | 5AF/DE |
| Jenkins, Charles W. | SARPMA/CV |
| Jensen, Norman K. | ADCOM/DEE |
| **Jewhurst, John H. | USAF/LEEPB |
| **K** | |
| Kautz, James G. | Nellis/BCE |
| Kent, Richard B. | SAC/DEM |
| Klingensmith, Robert | USAF/LEEC |
| Knutson, Duane E. | Malmstrom/BCE |
| Korzep, David A. | Hill/BCE |
| Krueger, Earl L. | Vandenberg/BCE |
| **L** | |
| Lemons, Roy D. | USAFSS/DE |
| Lustig, Sheldon J. | SAC/DE |
| **M** | |
| MacKenzie, James S. | USAFE/DEM |
| McFarlane, Raymond | ATC/DEP |
| McGovern, Larry E. | Eielson/BCE |
| **McHaffie, John C. | AFESC/RE |
| Mitchell, Jarrell F. | AFCS/DE |
| Morton, Alan W. | AFSC/DEP |
| Munsie, Lawrence | PACAF/DE-2 |
| Murray, Edmond F. | Osan/BCE |
| Mussetto, Elo | AFRCE/CR |
| Myers, George F. | Langley/BCE |
| **N** | |
| Neal, James W. | Andrews/BCE |
| Noakes, Richard C. | TAC/DET |
| **P** | |
| Paul, Herbert D. | ATC/DE-2 |
| Pearman, John D. | SAMSO/DE |
| *Perritano, Frank R. | ATC/DEH |

*(Continued on Page 4)*

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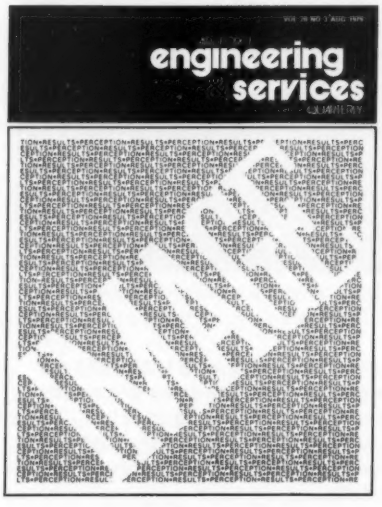
# AIR FORCE engineering & services QUARTERLY

**Gen Bennie L. Davis**
Commander
Air Training Command
**Lt Gen Stanley M. Umstead, Jr**
Commander
Air University
**Maj Gen Gerald E. Cooke**
Commandant
AF Institute of Technology
**Maj Gen William D. Gilbert**
Director
Engineering & Services, USAF
**Col Oren G. Strom**
Dean
School of Civil Engineering

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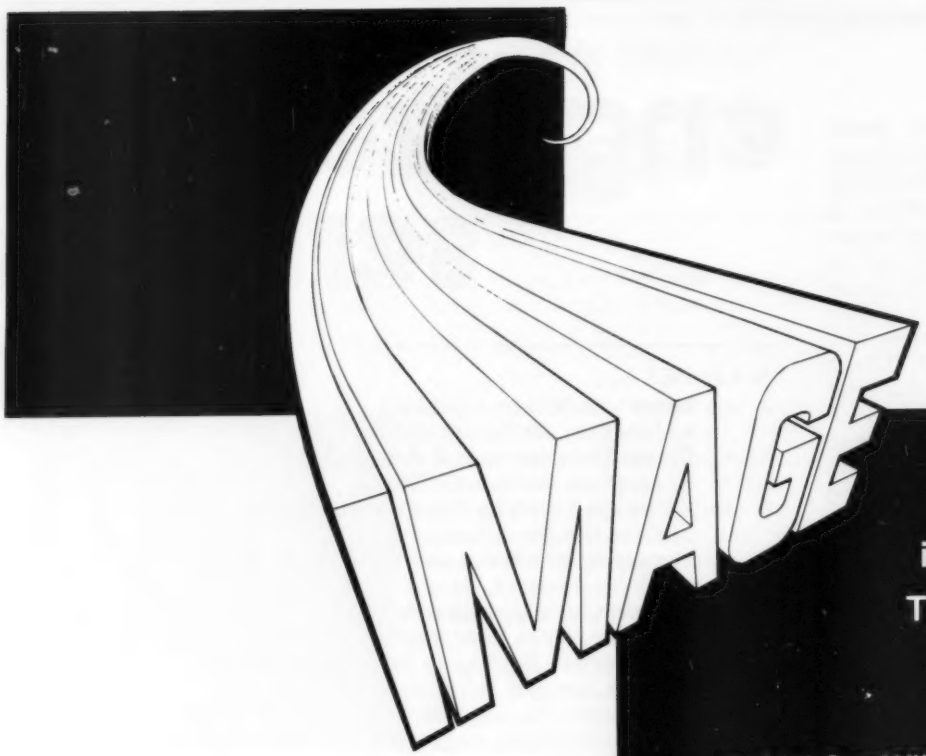


# Its Role in Achieving Total Success

by Maj Gen William D. Gilbert

Your personal image and the image of the organization you manage and lead, play a highly significant part in the **total success** of Engineering and Services worldwide. Image is based upon the **perceptions** of the people we serve, work with, and work for. Conversely, it is also based upon the results we achieve.

The Base Civil Engineer (BCE) has one of the most important and complex jobs on an air base. First, he's a big spender. He manages or otherwise administers about 40 to 60 percent of most base operations and maintenance budgets. Second, he probably has the largest number of vehicles on the base, both general purpose and special purpose. Third, he also probably has the largest work force with more visibility than any other group on base. Because of all this exposure, he has the most opportunities to look good or bad than any other commander on base. In addition, his people interface with 2 to 3,000 customers each month, and they also probably have more impact upon the total base population than any other organization. **Therefore, it is not only important that we do our job correctly, but that we reflect the right image in doing it.**

I want to mention a few areas that we all need to concentrate upon which, in the long run, will improve our image. We must:

- Examine the needs, wants and interests of the customer we are serving, the boss we work for, and the groups we are trying to reach.
- Look at the average time for accomplishment of work orders, and routine job orders with and without materials.
- Be sure to decentralize approval authority for self-help and even minor construction work. There naturally needs to be good control, but easy, non-bureaucratic approval procedures can be impressive to the customer.
- Have a sharp service call operation. Find out who answers the phone, how a problem is handled, and check if we ever close the loop with the customer in terms of feedback.

Another influence on image is the manner in which the Commander's Update Briefing is conducted. It is probably the best spent 45 minutes you will ever have as a BCE or deputy. Use it to explain your unit's readiness, resources, performance and special subjects. The briefing should be professional, with the facility clean and orderly. By all means, use a good briefer to make the actual briefings.

Seek out your commander early and tell him how you program and schedule your work. Realize that schedule deviations will be present, but take the opportunity to explain the impact of de-

viations to your schedule. In addition, seek his requirements early. Don't let his needs surprise you. You have no right to complain about "command interest" caused deviations unless you are communicating with and seeking inputs from the commander early. Keep your eye on what I term "people facilities," the dorms, dining halls, recreation facilities and others. Periodically, face your constituents—that is, your building custodians. Tell them their job, encourage them and reflect that "I care" image.

There are also some important people you need to talk with, get to know, and get on your side.

**Talk to your superintendents:**

- They can be your ambassadors of good will on tough jobs.
- Choose them carefully. They must be able to walk, talk and well present your image.
- They should be the main individuals responsible for positive work force control.
- They should also be the "key-men" and managers of projects.

**Talk to your construction management people:**

- They also directly contact our customers, and
- They can also prevent costly changes to contracts by good facility user communications.

**Talk to your design engineers:**

- Have them forward thinking.
- Make sure they are concerned about energy use in their designs.
- Have them look at design improvement as not an end in itself, but as a means to achieving other goals in energy, quality of life and productivity.
- Instead of trying to correct each system within a facility, have them evaluate the energy performance of the whole building.
- Make sure they are effectively communicating with facility users when doing or managing design projects. The 35 percent design stage is the **go/no go** point for large project changes.
- Have them examine "building redesign," that is, renovation of an existing building with good structural qualities making it more attractive, functional, energy effective and people oriented.
- Have them investigate and begin to employ the concept of "cooperative use" for our facilities. For example, they should consider designing a single building that can be used as a chapel, meeting place, theatre and conference facility.

**Talk to your planners:**

- They meet many people.
- Make sure they personally know the building custodians. Look at how they perform facility inspections.
- Find out if they inspect and plan with a knowledge of what shops actually need work.
- Make them "area managers" for portions of the base. It can produce good results and invoke a strong sense of responsibility in our planners.
- Look at the time a work requirement is in planning. Let's get the work requirement done or get it back to the customer with status.

**Talk to your fire department people:**

- Look especially at technical services inspectors.
- Find out if they are customer minded.
- This is again an area having frequent contact with the base population.

**Talk to family housing maintenance folks:**

- Look at the interface between your Customer Service Center, Family Housing Management Branch, and the Family Housing Maintenance Shop.
- We often, internal to civil engineering and services, cause our biggest problems with regard to our housing occupants. This most definitely affects our image.
- Impress upon the family housing manager the need to act as our "ombudsman." Managers are there for more than just housing assignment. Look for one-on-one communications with new arrivals to the base.

**Talk to your SMART people:**

- They should be your elite forces.
- Your supervisors of these teams are the key. They find the work, directly contact our customers, and determine whether commitments are met.
- High use facilities should be the main target. The desire is minimum time between work identification and accomplishment.
- Team personnel have a big influence on image.

**Image is based upon the perceptions of the people we serve, work with, and work for. It is also based upon the results we achieve.**

Don't think for a minute that engineering and services can work alone. All base level support organizations must work together, be supportive of each other, and be effective in what they do. An adversary relationship must be avoided. Procurement capabilities, especially at the end of the fiscal year, are of vital interest to you. Supply is our life blood, and transportation is a vital link in doing our job. The funds management business is a puzzle to most people. Find out about it. Your funds manager needs to be sharp and communicating across the base. Get to know each support squadron commander. Rub each other's back. Run engineering and services like you would any business. Build an effective image in the minds of these people and your job will be a lot easier.

Objectives also build an image. Have objectives that aim at "breakthrough." Be forward thinking: be on the offensive and not the defensive. Have an objective and action plan ready to correct a problem before your boss tells you about it. Think innovative.

Finally, accomplish your BCE job with an eye toward the key issues facing our entire Air Force today. We must do our work with emphasis on:

- **Energy:** Realize that an eight percent reduction, out of a total directed 20 percent from the 1975 baseline, must be achieved through the use of O&M funds.
- Do your work with emphasis on **readiness.** Realize that the **Prime BEEF** reposture will mean taking increased manhours out of your hide for training and management of personnel and equipment.
- In addition, more O&M dollars will be directed to equip the mobile teams.
- The "bottom line" is fewer dollars and less available direct manhours to do the peacetime O&M job at base level.
- Do your work with emphasis on **economy of effort.** We will have to apply scarce dollars where we can get the "most punch for the buck."
- At the same time, we must continue to do our work with attention to **people** and their quality of life whether at home, work or play. Therefore, with money going to energy, readiness and higher than ever personnel costs, less actual work can be bought and accomplished unless we are more productive at what we are doing.

This brings me to the final area of emphasis: **productivity.** We know the things that detract from, and add to, productivity—but we can't precisely define it. I do know that we have to increase or stabilize our output of service with less available input of resources. About 70 percent of the controlling factors that can bring about productivity increases are within the minds and motivations of our own people.

The whole point of what I am conveying to you is that **we must work smarter.** Your image is the key and your "areas of emphasis" are also critical. We need to improve our position in life. We need to receive better rewards, recognition **and** promotion board results. We need to be looked upon as professional, effective, efficient and innovative—with an eye toward the future.

Quite frankly, I can't do it alone. I need **each and every one of you** to work with me on it. Remember that the customers, bosses and the people working for you **respond to their perceptions** and the **visible results** you achieve. This, in turn, produces your image.

I challenge you to make it better. E&S

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## Projected End of Summer Assignments, Con't.

| | |
|---|---|
| *Perry, John | AFESC/DEH |
| Pizzutto, J.F. | AFESC/RD |
| Plack, Richard P. | 1185CE GP/CC |
| Price, John C. | AFISC/EN |
| Prince, Neil E. | Hickam/BCE |
| **R** | |
| Reining, Robert R. | PACAF/DE |
| Reynolds, P.G. | Robins/BCE |
| Rice, Tommy E. | Lowry/BCE |
| Robb, William G. | USAFE/DER |
| Roesener, Arlie K. | 8AF/DE |
| Roth, Charles A. | Edwards/BCE |
| Rutland, George L. | Chanute/BCE |
| **S** | |
| Sachs, Sumner S. | ESD/DE |
| Scheideman, Elton | 15AF/DE |
| Schultz, Sterling E. | AFESC/DEV |
| Scrafford, Richard E. | Dover/BCE |
| Sexton, John N. | PACAF/DEP |
| Shaw, William M. | AFLC/DE-2 |
| Shiffert, John B. | Rhein Main/BCE |
| Sims, William R. | 554RH/Osan |
| Smiley, K. S. | PHASE IV Prog |
| Smith, Thomas W. | Fairchild/BCE |
| Snow, William M. | Pease/BCE |
| Staton, William D. | Charleston/BCE |
| Stowell, Dibrell C. | 819RH/Wethersfield |
| Strait, Ernest D. | USAFE/DE-2 |
| Strom, Oren G. | AFIT/DE, Dean |
| **T** | |
| Tate, George R. | AFLC/DEM |
| Tatum, Walter F. | MacDill/BCE |
| Taylor, George R. | Tyndall/BCE |
| Thomas, George J. | MAC/DEP |
| Thomas, John P. | SARPMA/CC |
| Tissaw, George H. | USAF/LEER |
| Tuttle, George G. | 820RH/L. Meade |
| **W** | |
| Whittenberg, Jean R. | Travis/BCE |
| Willett, James G. | SAC/DEV |
| **Y** | |
| Yamada, Hisao | AFESC/CV |
| Yancey, Kenneth E. | OASD/MRA&L |
| *Yee, Edmund C. | PACAF/DEM |
| Yow, Bobby G. | Carswell/BCE |
| York, Guy P. | AEDC/PMO/DE |

**RETIREMENTS THROUGH 1 NOVEMBER 1979**

| | |
|---|---|
| Amerio, Umberto M. | Poad, William J. |
| Bryant, Warren A. | Pope, Dallas H. |
| Clements, Douglas M. | Potter, Frederick R. |
| Colvin, Thomas E. | Rains, William E. |
| Conover, Charles B. | Reaves, Donald R. |
| Cusick, Paul B. | Reding, John J. |
| *Fried, Clarence D. | Rubenstein, Morris B. |
| Hawkins, James R. | Sheehan, Leo F. |
| Hedge, Thomas L. | Stebick, James A. |
| Hinz, Richard H. | Taylor, Daniel D. |
| Kinder, Morris B. | Tefft, Howard E. |
| Martin, William C. | Waldron, David L. |
| *Olsen, Leo E. | Woods, Donald R. |

*Services
**Reserve or Guard

# Career Development: A Perspective

by Maj Gen William D. Gilbert

Career development is the means by which any organization becomes, and remains effective, viable and successful in the pursuit of its goals. Even if that organization obtains all the resources that it perceives required to meet organizational goals, long term success will be realized **only** by current effective leadership, complemented by strong potential leadership "waiting on the sidelines" to accept the reins of control in the future. Strong potential leadership does not just happen—it is molded over many years of exposure and experience. It is the end product of carefully planned and tenaciously followed **career development.**

The benefits of **career development** are twofold: sustained growth for the organization and improved leadership capability for the individual. The responsibility for **career development** is shared by three entities: the organization supervision and the individual. In the Engineering and Services community, we are concerned with the **career development** of all three elements of our workforce: our officers, our enlisted personnel and our civilians. This program is so demanding and so complex that it **cannot be dictated** with any adequate success from Headquarters US Air Force but it can be and is, **supported** in total by this office. Air Staff personnel and, in particular, the HQ US Air Force Civil Engineering and Services Management Evaluation Team (CESMET) works this issue at every opportunity during visits to the field. It has been a special consideration of the CESMET in the last 55 base visits. The consensus from these visits is that we have not done as well as we should have in the past but are now beginning to make improvements in the area of **career development** at base level, a very fertile arena, for that is where most of our people are located.

We are not advocating complex checklist procedures for supervisors to develop and to follow; we do suggest that the basics are the essential first step. Communicate! All too few supervisors take the time to communicate with their personnel. Base Civil Engineers (BCEs) must have open and frank rap sessions with their officers, senior NCOs and civilians—and we ask the BCE to **listen.** Too many rap sessions turn off the attendees when the boss uses them only as a means to pass on his current concerns, the party line on issues, etc. Major command (MAJCOM) visitors to the field, and especially senior officers, have the unique opportunity to demonstrate "higher headquarters" concern and interest in people and in their development. Some MAJCOM DCSs for Engineering and Services are now meeting with the assembled officers, senior NCOs and senior civilians during their base visits. The results are dramatic—people are getting their personal views and counsel not only on contemporary important issues but also on their careers and their future in the Engineering and Services community. Call it first line public relations, retention promotion or whatever, the fact is that the organizations are demonstrating commitment to **career development** and the participants need, appreciate and use it.

The most important part of the equation for effective **career development** is not the organization nor the supervisor but the individual. It is the individual who must recognize what the organization offers, who must wisely seek and use the advice of supervision and who must develop his or her own strategy for a successful career. This is no small task. Our educational systems do very well in training our technicians and our managers in those skills but barely touch the subject of **career development.** At the Air Staff, we are working toward helping our officers, enlisted and civilian personnel to better plan their careers.

The HQ US Air Force CESMET has now counseled approximately 400 company grade officers concerning their careers and has developed a **Career Development Brochure for Company Grade Officers.** This brochure is the product not only of the CESMET but also reflects review efforts from all MAJCOMs, the School of Civil Engineering, PALACE Blueprint, the Air Staff, and both senior and junior officers in the Engineering and Services community. It is not a bible for **career development** but instead is offered as a guide for both company grade civil engineering officers and their supervisors. Elements of this brochure also apply to the enlisted and civilian workforce. A companion brochure is also being prepared for company grade services officers. Similar brochures for the enlisted and civilian workforce are under consideration.

Distribution of the **Career Development Brochure for Company Grade Officers** will be completed by early fall. All MAJCOM DCS/Engineering and Services, BCEs and supervisors will also receive copies so that they will be familiar with the brochure and be able to help new accessions better plan their Air Force careers. E&S

When you show genuine care for people by making life a bit more meaningful for them, there is no price tag on the enhancement that follows. The Engineering and Services community within Air Force Systems Command is proving that a caring attitude is the best foundation for its people programs.

# AN IMAGE CAREFULLY CONSTRUCTED CARING

**by Capt Donald J. Graybill**

"Me—improve **my** image? You've got to be kidding!"

Though not normally spoken, this attitude often lurks beneath the surface and threatens the success of many individuals—and organizations. Change **is** possible. However, I submit: A genuine **caring** attitude comes first; enhanced image follows.

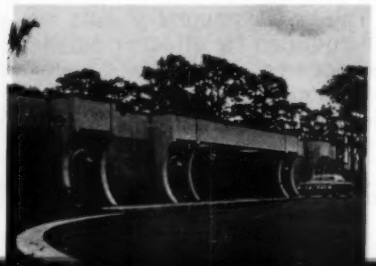
This is the general thrust of Air Force Systems Command's (AFSC's) "People Program" expressed by General Slay when he assumed command a little over a year ago: "I am interested in a strong foundation of care for our people, both civilian and military." He is keeping that pledge—assisted by the Engineering and Services community of AFSC. Last summer the Command spent several million dollars on quality-of-life related facility/equipment improvements. It plans to spend at least that amount again this year.

For the enterprising, young architect laboring over a fresh, "untried" concept, or for the diligent draftsmen working well into the night to meet a procurement deadline, or for the billeting desk clerk patiently responding to a weary and irritated traveler, it's worth reflecting on the fact that we really **are** meeting people's needs. We are making life a bit more meaningful for them. **No price tag can be placed on that enhancement!**

Are they grateful? In most cases—yes! Is the Engineering and Services image enhanced in their eyes? Without doubt!

Let's talk specifics. First, find out where your people really are; what are their frustrations? What are their needs? What are their perceived "wants?"

This was the first step in the AFSC dormitory upgrade program several years ago. A questionnaire was prepared and many airmen queried on their relative priorities—the real roadmap for our efforts. Some startling discoveries were made. The "big splash" approach



TOP: Lounge and Game Room in the airmen's dorm at Brooks AFB. CENTER: Typical dorm at Edwards AFB features "motel" type exterior entrances into each room. LOWER LEFT: How the dorm above looked before MCP modernization. BELOW: Exterior of the new Child Care Center at Eglin AFB.

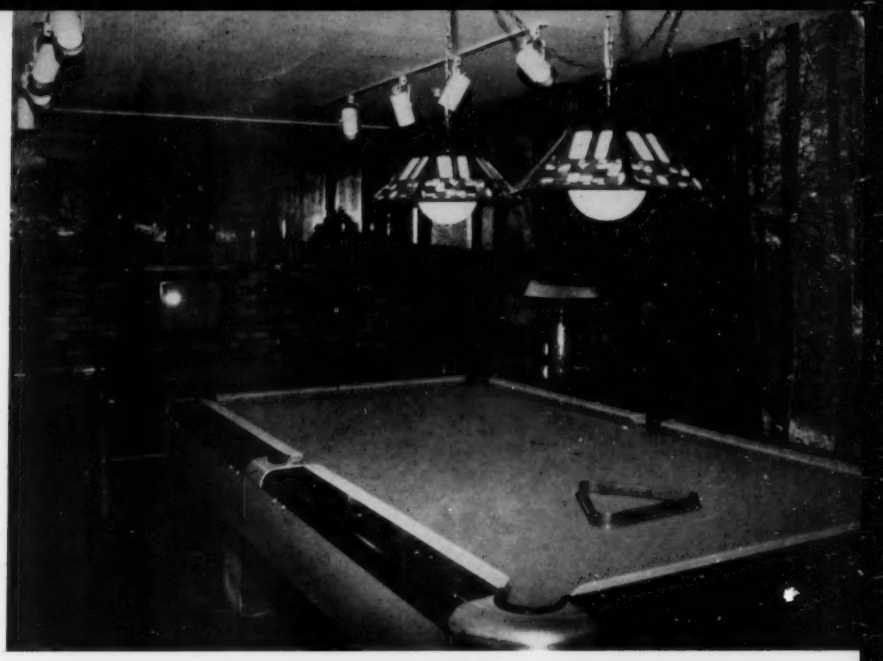
simply doesn't do much for the airmen. In fact, it will probably **decrease** your image in their eyes! Instead, they want additional duplex electrical outlets; more storage space for their personal belongings; a good secure door and lock; improved acoustics; and some personal privacy—things that might not turn some commanders on. Carpeting, painting, graphics, plush chairs/couches, color-coordinated drapes/bedspreads /carpet are nice, but it could be an expensive mistake to provide these before eliminating the dissatisfiers.

Secondly, get involved personally. Nothing helps more than the "I care enough to talk to you" attitude. Commanders and supervisors must personally stay in touch with the people they serve through councils, rap sessions and on-site personal visits.

In the dorm upgrade business, it's imperative that the services officer, Base Civil Engineer and the commanders visit the dorms regularly to keep in touch with the dynamic pulse of the airmen population. The AFSC Headquarters staff has found it essential to personally visit every dorm, dining hall and other "people" facilities in the command to stay in touch with its clients and the modernization being accomplished for them. We visit formally twice a year and accomplish other visits "in between."

Observations during these visits are quantified by a checklist that rates the present living condition relative to a predetermined standard. These results are then graphically portrayed to highlight progress. We too must care enough to know where improvements are being made and where they aren't (and what the quality of the work is).

Finally, follow up. Don't assume the customers are content. Talk with them; have them respond to questionnaires. Then don't hide your findings. Your successes probably have important application at other locations. Your failures also provide important data that may turn a colleague's potential failure into success.



TOP: Color TV and pool table are features of this airmen's dorm at Brooks AFB. CENTER: The modernized latrine in the Fire Station Bunk Room at Hanscom AFB. BELOW RIGHT: Interior of the Reception/Intro Center at Eglin AFB. BELOW LEFT: Improved dining hall at Edwards AFB.

This philosophy works. We've already mentioned that the **dorms** of AFSC are coming to life. A program to provide individual security, safety and privacy, as well as comfort and convenience, is nearly two-thirds complete. It is costing between $2,000 and $7,000 per man to do it, but retention figures of unaccompanied enlisted personnel already document some of the benefits.

True, the Military Construction Program must be used to accomplish major improvements. However, given some command funds, creativity, drive, value engineering and a generous dose of personal caring, the quality of life for airmen within AFSC is being sig-

nificantly improved with facility maintenance, repair, minor construction and new furnishings within command approval.

The Systems Command Quarters Improvement Program also includes improvements to **transient airmen quarters, unaccompanied officer quarters, guest housing and fire station bunk rooms.** The same creativity/ingenuity applied to dorm living environment is also enhancing life for unaccompanied officers, transient families and the fire alert crews. In these latter cases, improvements are all being funded from command resources.

A vital element of the young airman quality-of-life package is **dining hall** improvement. Dining hall food can be very much like grandma cooked. The eating environment can be comparable to modern off-base restaurants. Fast food service can—and should—be available.

One-stop **reception/intro centers** are becoming a big hit. Eglin AFB, Florida, was our leader by converting an existing nondescript but strategically located facility into a 24-hour reception/intro/billeting office operation with part-time family services support. The facility is attractive and comfortable. Feedback indicates our people like it. The client feels like a real person! And don't discount the importance of first impressions. The idea is catching on at several other AFSC locations.

Probably the most important **hobby shop** for the young airman is the auto hobby shop; every airman with $200 to his name needs it. Make sure it is adequately equipped and staffed with service oriented people.

**Child care centers** are on the upswing. Policy changes in recruitment of married women are significantly increasing the demands on our child care centers—for both healthy and chronically ill children. We need to plan, program and budget now to be ready for this growing need.

CAPTAIN GRAYBILL *was a Civil Engineer Programs Officer, Headquarters Air Force Systems Command, Andrews AFB, Maryland, and recently, was transferred to Maxwell AFB, Alabama, to attend Air Command and Staff College. He earned a bachelor's degree in civil engineering from Penn State University and a master's degree in Aerospace Facility Engineering from the Air Force Institute of Technology, Wright-Patterson AFB, Ohio.*

If the military is to keep pace with the civilian sector, **recreational facilities** must be emphasized: running tracks, parcours, tennis/racquetball courts, gymnasiums. Some of these facilities can be provided or improved with limited command funding, appropriated and nonappropriated. Others must wait for Air Force Welfare Board funding.

In the meantime, keep up with necessary maintenance/repair, improve with paint/graphics, and keep the user posted on what you are doing (and limitations you face) to make a permanent improvement.

Another weak point being squarely attacked by AFSC base officials is the condition of our **commissaries.** The average AFSC grocery shopper is currently experiencing a noticeable level of heartburn over inadequate facilities. Hopefully, a caring attitude will minimize this condition within the next several years. A multimillion dollar program (surcharge-funded) is underway to replace or improve most of our commissaries by providing better service and reducing operating costs.

**Mobile home parks** have become a much more desirable way of living as opposed to life in the older "trailer parks." More and more people enjoy the benefits of home ownership, with neat storage sheds, manicured lawns, trees and shrubs, street lighting, etc.

Are **family housing** units comfortable, safe, functional and attractive? If so, you as a commander, civil engineer or services officer probably care! Much can be done with maintenance and repair funds. All it takes is a caring attitude, some drive, a spark of enthusiasm and a little creativity.

Then, too, engineering and services caring has to extend far beyond the tangible facility/equipment improvements we provide: the friendly voice at the service call desk; prompt and efficient housing maintenance; active use of the AF Form 1255 for quality control evaluation; equitable family housing assignment/termination practices.

The courteous and sympathetic billeting desk clerk, efficient dining hall service—and, of course, tasty food are but a few of the many areas where we can either express a desire to care, or grudgingly do our job—and blow our image!

Care for yourself too. Military dress and bearing, personal discipline, self-respect, produce greater unit cohesiveness/effectiveness, and inevitably build the image.

So. . .what is your perceived image? Is it the "can do" or the "too old to change" type? Is it the "I care about you" or the "I care about me?" As individuals, and particularly as members of the Air Force Engineering and Services community, we have an excellent opportunity to enhance our corporate (and personal) image by **genuinely** caring for people. Come to think of it, all this was expressed much more eloquently nearly two millennia ago: "And just as you want men to treat you, treat them in the same way." (Luke 6:31)

Try it—and see whether the image isn't altered! **E&S**

*Directorate of Engineering and Services*

# Current Emphasis

*brief commentary on significant developments*

MINOR CONSTRUCTION PROGRAMMING, AFR 86-1--All installations should have received copies of new Chapter 5, AFR 86-1, dated 17 Oct 78 from their major commands, for use in programming minor construction projects. This 17 October printing (typed double spaced on bond paper) supersedes Chapter 5, dated 6 Aug 76. Contact your MAJCOM if you do not have this chapter. Formal Change 1 to AFR 86-1 will go to print shortly. (AF/LEEPB/227-8957).

MWR FACILITIES--A value engineering study is being made of design and construction criteria being used for child care and youth centers in an effort to reduce construction costs. A similar value engineering study is being initiated for auto hobby shops. (AF/LEEPB/227-7550).

DOD AND AF DESIGN AWARDS PROGRAM--DOD will again have a Design Awards Program. The Air Force has modified its Design Awards Program schedule to comply with the DOD program schedule. The submittals must be in to AF/LEEES by 3 Sep 79. This year for the first time the Air Force will accept concept submittals as well as completed projects as entries in the program. (AF/LEEES/767-4257).

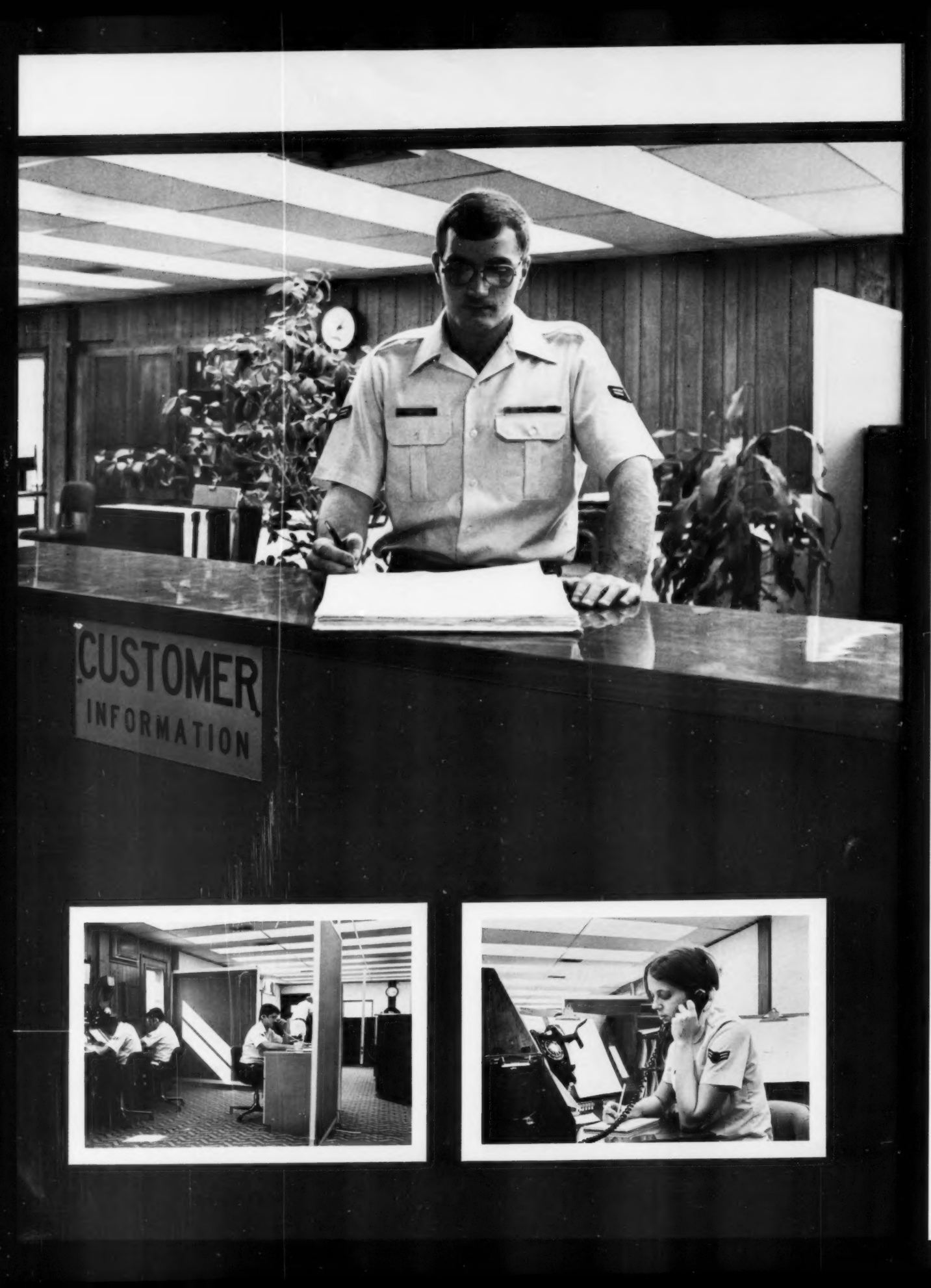
NEW AND REVISED FACILITY REQUIREMENTS CRITERIA--Change 7 to AFM 86-2 contains substantial changes in facility requirements and space criteria for a wide variety of facilities, most importantly, maintenance facilities. Other affected facilities are for telecommunications, data processing, judge advocate activities and munitions loading crew training. (AF/LEEES/767-4261).

JCS UNIT STATUS AND IDENTITY REPORT (UNITREP) REPORTING-- Starting 1 Oct 79, Civil Engineering units will report combat readiness status to the JCS. AFR 55-15 contains detailed reporting instructions. Contact your MAJCOM Prime BEEF manager for further details. (AFESC/970-3211).

RRR TRAINING--on 2 Apr 79 the gates were opened at the new Prime BEEF training site near Eglin AFB FL for a cadre of Prime BEEF personnel to undergo rapid runway repair training. The team members participated in the repair of two runway craters using the methods prescribed in AFR 93-2 and covered the repaired craters with an AM-2 patch. There were six of these special courses conducted through mid-May, when the scenario was changed to include additional contingency subjects such as Harvest Eagle resources, explosive ordnance reconnaissance, and chemical warfare protection. A total of 27 CF-1 and CF-2 teams from our CONUS units will undergo training at our Eglin site this year. (AFESC/970-4215).

DRAFT GUIDANCE--Check with your publication distribution office for copies of AFR 93-2 and AFR 93-3. AFR 93-2, covering Base Recovery Planning, and AFR 93-3, the Prime BEEF Program, should both now be available. (AFESC/970-2294).

AIR FORCE FACILITY ENERGY PLAN--Published 1 Jul 79 and distributed through Engineering and Services channels, the plan provides goals and guidance for the Air Force Facility Energy Program. Particular attention should be given to the Energy Conservation Investment Program. The plan contains guidance on projects in which changing conditions affect energy savings and may require that the project be stopped. (AFESC/970-2894).


CUSTOMER
INFORMATION

The most obvious benefit realized from the rehabilitation of the Production Control Center at Homestead AFB is the improvement in management and efficiency. A less obvious but equally important benefit is the positive image that customers have of civil engineering after a visit to the attractive yet functional environment.

# Increasing Efficiency And Building An Image

by Lt Col Joseph L. Hicks

An open office environment recently created in the Production Control Center of the 31st Civil Engineering Squadron (CES) at Homestead AFB, Florida, provides an attractive yet functional work atmosphere for civil engineering personnel. The design project reduced building rehabilitation costs and shortened project time. In addition, the positive image projected to customers who visit the Center reflects the caring attitude that Civil Engineering gives to all projects on the base. The experiences and reasoning which went into this project are offered here to assist other organizations who may be planning similar rehabilitation projects.

The "open space" office environment is a relatively new concept. Previous designs provided individual offices with fixed partitions to gain privacy, sound control and status. In the new concept, sound control is essential; but, the need for privacy and status has taken a back seat to the need for efficiency and improved communication. In an open office, we often find that problems which formerly might have been written on a memo are solved by taking a few steps and chatting about the problem with another individual. It is more efficient to be able to see when a coworker is free to talk than it is to walk out of one office, down a hall, and into another office. The open space concept provides office space without fixed partitions. Office furniture, free standing partitions and plantings provide physical privacy. Acoustical treatment on ceilings, walls and partitions plus carpets on the floors provide sound control.

Personnel with the 31st CES delayed a badly needed office rehab for the Production Control Center for two years because they knew that a major change to **AFR 85-1** was forthcoming. While the project awaited the **AFR 85-1** reorganization, the industrial engineer (IE) developed a detailed study of the personal interactions between people in Production Control. The IE was instrumental in coordination of the design as it evolved. These efforts brought new facts to light and disproved old assumptions. Efficiency in work flow was a major result of the IE effort. As a sidelight, it is interesting to note that in the Tactical Air Command workshop on reorganization, it came out that most bases worked under the newly reorganized structure for a while before moving desks or partitions. At Homestead AFB, we moved the desks **first;** and, when the move was completed, the new **AFR 85-1** procedures were implemented smoothly.

Entire length of the Production Control Center is visible from the controller's desk.

**COLONEL HICKS** *is Chief of Operations, 31st Civil Engineering Squadron, Homestead AFB, Florida. He earned a bachelor's degree from the US Air Force Academy and a master's degree in engineering management from the University of California at Los Angeles. He is currently enroute to a new job as Director of Engineering for 5th Air Force, Yokota, Japan.*

This was possible because the work flow was carefully analyzed prior to the move.

The success of the open space concept depends on sound control. We used a drop ceiling throughout the building and acoustical tile above a wainscot in a portion of the building. General Services Administration carpet reduced sound considerably. Free standing dividers are used around the service call area only. Formerly, the major noise producer was the radio loudspeaker and the problem was solved by giving the service call dispatcher a telephone operator's earpiece and mike boom. The dispatcher can elect to either talk on the radio or the telephone over the headpiece. In cases where the entire room needs to hear the radio, a loudspeaker is available; normally, radio traffic is not noticeable to workers nearby. In addition to the dispatcher, each controller has access to the radio. The controller's radio control looks like a normal push-to-talk telephone with a radio mike and speaker in the instrument. This type of equipment has been available for years and is most often used in aircraft maintenance control centers.

The construction effort was completed in seven days as part of a Prime BEEF project. Controllers worked out of shop offices, and service call people moved to the Fire Department. A publicity campaign helped to reduce job orders during the period of disruption.

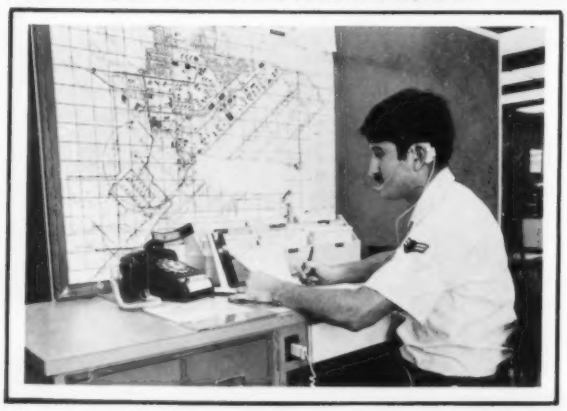
The 1942nd Communication Squadron gave special service; and, within a short period after construction was complete, the new phone system was in order. This should be an area of special interest, with every detail planned with communications planners before work begins.

The base contracting office also supported the Prime BEEF exercise by sending a buyer with the foremen to local wholesalers for purchases. This simulated what might happen if the Prime BEEF team were deployed to Germany and told to rehab an office building to prepare to receive a new fighter squadron operations section. Quite frankly, this created a post-exercise paperwork burden. If something similar is attempted, the best solution is to have a dedicated buyer working with Material Control.

The construction plan eliminated all non-load bearing partition walls in one half of the building. Service call specialists were particularly happy to tear down the walls to their small cubicles. An additional discovery was that the space gained was considerably more than it appeared it would be from the drawings. This was because a wall not only takes the width of the lumber and sheet rock, but some additional undefined space. A coincidental happening was that the air conditioning worked much better—probably due to more free flow of air.

After a year in the facility, both management and efficiency of the Production Control Center have improved over that of the old facility. The attractiveness of the work area helps make a nicer environment for both civil engineering personnel and their customers. We feel our own building is a good example of how the "can do" in Civil Engineering can do a nice job. E&S

Dispatcher controls over 80 radios. Earpiece allows him to hear and speak on either the radio or telephone.



Chief of Production Control checks the IWP board. New office furniture helps upgrade the Center.

# Commander's Update Briefing:

## --to assist in the decision making process

by Lt Col James E. McCarthy, PE

The primary purpose of the **Commander's Update Briefing** is to enable the commander of a center, wing or group to review civil engineering services and performance and to participate in decision making concerning resources. The **Update** is also an opportunity for the Base Civil Engineer (BCE) to report on the state of an organization which typically consumes 40-60 percent of the base resources and impacts on every aspect of mission and people support.

Commanders that the Civil Engineering and Services Management Evaluation Team (CESMET) has met in the field are positive, results oriented people and are extremely interested in the vital civil engineering function. They are anxious to understand their civil engineering operation, to provide meaningful guidance and to objectively review performance. The **Update** is the best means to achieve these goals.

A basic theme of the **Update** is productivity. **Productivity** in civil engineering involves both **achievement,** getting results, and **efficiency,** using resources wisely. Assessing the level of productivity in objective, measurable terms is difficult. Consequently, it is necessary to use a combination of objective and subjective indicators to make judgements about achievement and efficiency. The **Commander's Update Briefing** is useful for this purpose.

At the update briefing, many indicators are reviewed which support judgements about productivity. For example, measuring success in meeting work order and job order commitments supports judgements about **achievement** while a review of resources, for example, bench stock, taxi and funds supports judgements about **efficiency.**

Updates do not always fulfill their purpose. CESMET often finds that commanders are not satisfied with the content and format of the update. The major problems they address are as follows:

- **Too long:** Should not exceed 45 minutes—the commander is a busy person and should not be asked to stay longer.
- **It drags.** The **Update** is for the commander and should not be used for BCE staff coordination or between the BCE staff and other functions. Do the coordination before the update—no surprises.
- **Complexity.** Avoid complex arrays of data and civil engineering jargon.
- **Visual Aids.** Use standardized view graph formats that highlight make or break points—allows "quick-flip."
- **Lacks objectives.** Example: engineering projects under construction are each painstakenly reviewed while design objectives and progress are omitted.
- **Not comprehensive.** The **Update** can be comprehensive yet succinct. Often the operations function is reviewed in detail while military family housing and fire department receive cursory review.
- **Overemphasis on failures.** Take credit for the many successes as well as reviewing causes of deviations from objectives.

On each base visit, the CESMET views the briefing data. Afterward, a cross talk and critique are provided for the civil engineering staff. Good ideas are retained for subsequent visits. As a result of this experience, CESMET has prepared a brochure which provides a suggested format for an update. It is the product of many people, mostly from base level, who have worked hard at providing meaningful information to commanders. The brochure is organized to first address "readiness," the sole reason for a military civil engineering capability. Subsequent sections address "resources," "performance," and "special interest subjects." Each section contains sample view graphs with accompanying narrative to explain the significance of the data.

The brochure has been distributed to each major command DCS/Engineering and Services. The brochure is also left at each base visited by CESMET with the recommendation that it be considered as the basis upon which to structure local updates—so the commander can assess the achievement and efficiency of the civil engineering organization.

Readers desiring a **Commander's Update Briefing Brochure** may write to: **HQ AFESC/DET, Tyndall AFB FL 32403.** C&S

COLONEL McCARTHY *was the Civil Engineering Officer on the Headquarters US Air Force Civil Engineering and Services Management Evaluation Team when this article was written. He has since been reassigned as the Base Civil Engineer at Luke AFB, Arizona. He is a graduate of the University of Vermont with a bachelor's degree in civil engineering and a master's degree in public administration. He is a registered Professional Engineer in Nebraska.*

Energy conservation is taught children in the Base Elementary School on Little Rock AFB. Active participation by the children is integral, an example being the discussion of the relationship of temperature to operating cost.

# ATTITUDES ARE THE KEY TO ENERGY AWARENESS

Energy conservation programs in base elementary schools may be old hat to many. But here's one program that has gone much further. Little Rock AFB engineers have changed attitudes and planted the seeds of energy consciousness.

**by Capt James F. McEvoy**

With its cost ever increasing and its supply ever decreasing, energy continues to be the biggest problem facing the world. On most Air Force bases, it should not come as any surprise to know that utilities and jet fuels are the two largest budget items after the payroll. For the Base Civil Engineer, utilities are a major item in his O&M budget; therefore, they should also be one of his major concerns.

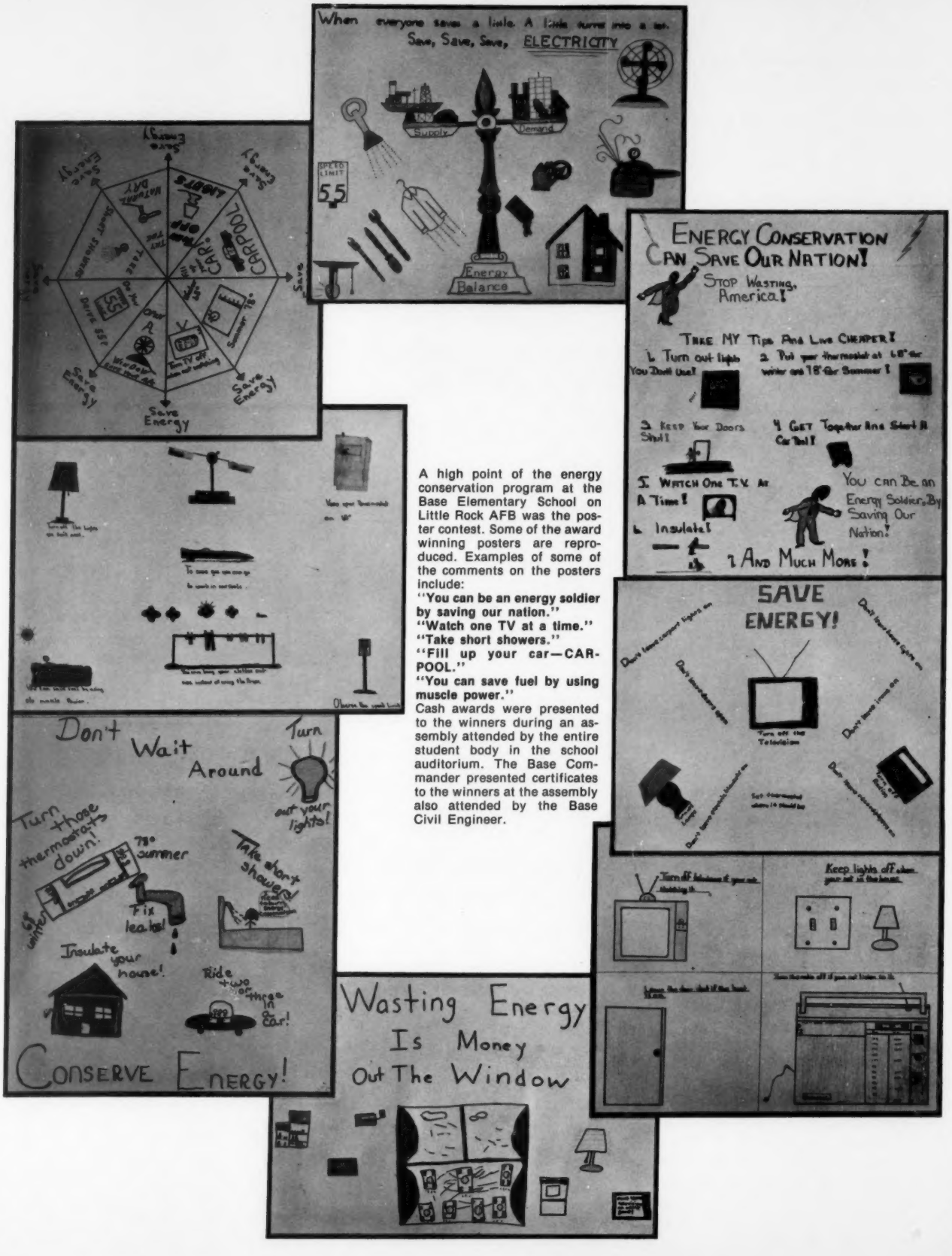
Dollars saved in utilities can be directly applied in many other areas. However, the reverse is also true. Increased utilities costs must be paid for with dollars from other pots, and when we start "robbing Peter to pay Paul," we are in trouble. The solution to this problem is energy conservation.

Every base has an energy conservation program. Efforts by each base to save energy and dollars can be categorized into two areas:

- **People Programs which are those that involve base personnel in energy conservation efforts to make them aware of the problems;** and
- **Projects which are those that involve such things as installation of insulation and storm windows, night-set-backs of thermostats, energy monitoring control systems, more efficient heating and cooling units, etc.**

Any effective energy conservation program must have a homogeneous blend of both in order to achieve Air Force conservation goals.

From the people standpoint, energy conservation is achieved through attitude. If we can educate people on the importance of energy conservation, we can change their attitudes. The more we can expose people to the problem and educate them in conservation methods, the greater our success rate will be.


When everyone saves a little. A little turns into a lot.
Save, Save, Save, ELECTRICITY
Supply
Demand
Energy Balance
SPEED LIMIT 55
Save Energy
CARPOOL
LIGHTS
ENERGY CONSERVATION CAN SAVE OUR NATION!
STOP Wasting, America!
TAKE MY Tips And Live CHEAPER!
1. Turn out lights You Don't Use!
2. Put your thermostat at 68° for winter and 78° for Summer!
3. KEEP Your Doors Shut!
4. GET Together And Start A Car Pool!
5. WATCH One T.V. At A Time!
6. Insulate!
You can Be an Energy Soldier, By Saving Our Nation!
7. AND MUCH More!
SAVE ENERGY!
Turn off the Television
Don't leave lights on
Don't leave doors open
Don't leave ironing on
Don't leave refrigerator door open
Don't leave radio on
Don't leave stereo on
Don't Wait Around
Turn those thermostats down!
78° summer
68° winter
Fix leaks!
Insulate your house!
Take short showers!
Ride two or more in a car!
Turn out your lights!
CONSERVE ENERGY!
Turn off television if you're not watching it.
Keep lights off when you're not in the room.
Wasting Energy Is Money Out The Window

A high point of the energy conservation program at the Base Elementary School on Little Rock AFB was the poster contest. Some of the award winning posters are reproduced. Examples of some of the comments on the posters include:

**"You can be an energy soldier by saving our nation."**
**"Watch one TV at a time."**
**"Take short showers."**
**"Fill up your car—CARPOOL."**
**"You can save fuel by using muscle power."**

Cash awards were presented to the winners during an assembly attended by the entire student body in the school auditorium. The Base Commander presented certificates to the winners at the assembly also attended by the Base Civil Engineer.

This energy awareness will change attitudes!

An example of how energy awareness did change attitudes was the FY 1979 Energy Conservation Program at Little Rock AFB, Arkansas. One of the main objectives was to educate more of our base personnel toward energy conservation as a way of life by arousing their "energy consciousness." Our most successful accomplishment was an Elementary School Energy Conservation Program.

One of the best places to start teaching energy conservation is with our children. Therefore, we made a major effort in grades 4, 5 and 6 in our base elementary school. Since most bases have schools, this is an ideal way to start changing attitudes, not only in the children, but in their parents as well. Our children have a strong influence on all of us and it is hard to refute them when they are right.

For those who may be thinking that you have already had a school program on your base and that it didn't do much for your conservation effort, the Little Rock AFB program involved more than just one assembly program and a bunch of pretty handouts. It was a concerted effort by many people and the best part is, that it did work, and it can work on your base. It is offered here to supplement your program and to help this nation's overall energy problem.

Obviously, any program begins with planning and ours began with the gathering of available information dealing with energy conservation and education. The Iowa Energy Policy Council, the National Science Teachers Association, and the US Department of Energy were helpful and their material was incorporated into our program. All three organizations provided ideas and each had a suggested curriculum.

The next stop was the principal's office. It cannot be overemphasized that 100 percent cooperation from the school at the very start is essential. When you get down to it, it is their program. You are simply a guiding force attempting to achieve an energy conservation goal. You must include the school administration and faculty in all planning and encourage them to take the ball and run with it.

*CAPTAIN McEVOY is an Electrical Engineer and Base Energy Conservation Officer. 314 Civil Engineering Squadron, Little Rock AFB, Arkansas. He earned his bachelor's degree in electrical engineering from Grove City College, Pennsylvania, and is presently pursuing a master's degree in business from Webster College.*

It took a working committee of the principal, science teachers, an instructional specialist and the author five meetings to formulate a viable curriculum. As the teachers moved into full swing and employed their skills, the author's function steadily declined. The resultant program was a four week curriculum with daily instruction by the science teachers. Each student received 30 minutes of class work each day for a total of 10 hours of instruction. The curriculum included a study of the sources of energy, its uses, energy conservation, and some basic electricity. It was the consensus of the committee both before and after the program that the subject matter is most easily adapted to and is most readily integrated into a science curriculum. Due to time constraints, only one curriculum was developed. For next year's program, we plan to have three separate curricula; one each for the fourth, fifth and sixth grades. This way, the programs will overlap but will not be repetitious. A child in the fourth grade will now proceed through a three-year energy conservation program with new material each year.

Along with the instruction, each student was provided with excellent handouts. The course outline was developed into a 20 page student workbook which included a course syllabus, suggested projects, and classroom and home exercises. Other handouts were **Mickey Mouse and Goofy Explore Energy** and **Mickey Mouse and Goofy Explore Energy Conservation.** Both are comic books from the Walt Disney Educational Media Company and were provided through the courtesy of Exxon, USA. Two pamphlets from the Department of Energy entitled **Energy Activities with Energy Ant** and **My Energy Book by Energy Ant** were also distributed.

The high point of the entire program was an energy conservation poster contest. The posters had an energy conservation theme and all students were eligible to enter. Each grade level competed individually for $15, $10 and $5 first, second and third place awards. Since there were three grade levels, $90 was required for the prize money. Initially, we assumed that fund raising would be a problem area; however, our assumption was unfounded. The Base Credit Union, the Officers and Noncommissioned Officers Wives Clubs, and the Base Youth Boosters Club donated the prize money. Other possible sources of funding for future programs might be the PTA and local banks.

Extra attention to promotion of the contest definitely paid off. The result was heavy participation by the student body and quality in the posters entered. Also, the benefits of reinforcing conservation ideas through the posters cannot be overemphasized.

Judging involved the school staff. The faculty was delighted to be a part of the program and it turned out to be an enlightening experience.

The Awards Ceremony was held in the school auditorium and was attended by the entire student body, the school principal, the Base Commander, and

the Base Civil Engineer. The poster contest and awards ceremony were thoroughly enjoyed by the children and turned out to be the most important elements of the entire program. They most definitely helped drive the energy conservation point home. In addition to the poster awards, the Base Commander presented a certificate of appreciation from the Little Rock AFB Energy Conservation Committee to the school. It is important that you thank the school for their efforts and establish a rapport where you can conduct similar programs each year.

In order to insure that the energy conservation theme was getting across in the classroom, we briefed each class individually on the importance of energy conservation. Points covered in our briefings were basically energy conservation tips, the foundation of the energy problem, meter reading, poster contest details and how it is everyone's job to save energy. Comic books were distributed at these briefings and were a great aid in maintaining the children's enthusiasm.

Throughout the program, publicity was used to the maximum extent possible. Even though we were educating the children in the school, the publicity the program generated served also to educate and inform other base personnel. Therefore, it is important to get your information office involved! Help them spread the word and don't forget to let the people downtown know what you are doing. As a result of our program, a nearby town has implemented a similar program in its entire school system. Publicity should be a key element in all programs because you are selling an attitude and the reward is energy conservation.

The Little Rock AFB Elementary School Conservation Program was a complete success. Immediate benefits have been registered on our utility meters but we have also planted some seeds that will continue to produce benefits since we have cultivated new attitudes. The program described here will give any energy conservation effort a giant step forward and will also increase energy awareness. It will also bring this country one step closer to energy independence. E&S

# Malmstrom AFB, Lowry AFB Win Trophies in Hennessy Competition

Malmstrom AFB was named the first place winner in the Hennessy Trophy competition for the best single unit dining facility in the Air Force at the National Restaurant Association Convention in Chicago in May. It was the second year in a row that food services personnel from Malmstrom have taken the trophy back to Montana.

The base took the award in the Single Unit Facility category of the competition which is an operation that serves more than 90 percent of its authorized meals in one dining facility.

Lowry AFB, Colorado, copped first place honors in the Multiple Unit Facility category.

Runners-up in the single unit facility and multiple unit facility categories were England AFB, Louisiana, and Eglin AFB, Florida, respectively.

The Hennessy Trophy Competition is sponsored jointly by the Air Force and the National Restaurant Association in conjunction with the International Food Service Executives Association and the National Industrial Cafeteria Managers Association. It marked the 23rd year of involvement with a worldwide effort aimed at excellence in management, food service preparation, serving techniques and sanitation in Air Force food service.

Food service personnel from Malmstrom AFB, Montana, admire the Hennessy trophy which they were awarded for having the best single unit dining facility in the Air Force. Presentation of the award was made at the National Restaurant Association convention in Chicago in May.

The Honorable Ms Antonia Chayes, Acting Under Secretary of the Air Force, announces presentation of Hennessy trophy for the best multiple unit food service operation to Lowry AFB. Brig Gen William Hoover, Commander, Lowry Technical Training Center, prepares to accept the award.

# FY80 PROFESSIONAL AND TECH

An integral part of the image of engineering and services personnel is their opportunity to keep current in the state-of-the-art with professional education and training programs. The following is the most up-to-date compilation of offerings of continuing

## School of Civil Engineering — Wright-Patterson AFB, Ohio

During the past year, the School and the Program Review Committee have thoroughly reviewed the curriculum of all 25 resident courses. Four new courses have been added, two courses have been combined into one, one course has been dropped, and two have been changed in length.

The two new courses in the Management Applications Series are: MGT 416, Financial Management Applications, and MGT 427, Fire Protection Management Applications. The two new Technical Applications Courses are: ENG 472, Engineering for EMCS, and ENG 563, Facility Energy Systems. MGT 510, Environmental Planning Principles and MGT 520, Environmental Planning Applications, have been combined to make up a new course entitled MGT 520, Environmental Planning, which will be three weeks in length.

MGT 004, the Environmental Protection Committee Members Course, has been dropped. The School is developing a slide/tape presentation to replace the resident course.

ENG 460, Mechanical Engineering for Supervisors, has been reduced from three to two weeks. ENG 485, the Contingency Engineering Course, has been expanded from two to two and one half weeks.

### TECHNICAL APPLICATIONS COURSES

**ENG 460, Mechanical Engineering for Supervisors** (2 weeks): For engineer supervisors in EEP and Operations branches.
**ENG 461, HVAC** (4 weeks): For design engineers.
**ENG 470, Electrical Engineering for Supervisors** (2 weeks): For engineer supervisors in EEP and Operations branches.
**ENG 472, Engineering for EMCS** (2 weeks): For systems engineers in the Operations branch.
**ENG 480, Building Systems** (3 weeks): For engineers/architects in EEP branch.
**ENG 485, Contingency Engineering** (2½ weeks): For all officers in the civil engineering career field.
**ENG 490, Architectural Planning** (2 weeks): For architects, architectural engineers and engineers performing architecture design.
**ENG 500, Environmental/Sanitary Engineering** (2 weeks): For civil and sanitary engineers.
**ENG 550, Pavement Engineering** (3 weeks): For pavement engineers.
**ENG 562, Contemporary Energy Applications** (1 week): For programmers.
**ENG 563, Facility Energy Systems** (3 weeks): For experienced mechanical engineers.
**ENG 571, Electrical Engineering** (4 weeks): For design engineers.
**ENG 590, Corrosion Control** (2 weeks): For corrosion engineers.

### MANAGEMENT APPLICATIONS COURSES

**MGT 001, Base Civil Engineering** (2 weeks): For the newly assigned officer and civilian.
**MGT 002, Commanders Civil Engineering Orientation** (1 week): For wing and base commanders and deputies.
**MGT 004, Environmental Protection Committee Members** (1 week): For base environmental protection committee members in eight functional areas.
**MGT 400, Base Civil Engineering Staff Officer** (2 weeks): For BCEs and Deputy BCEs.
**MGT 403, Industrial Engineering Management Applications** (2 weeks): For chiefs of Industrial Engineering branches.
**MGT 406, Family Housing Management Applications** (2 weeks): For chiefs and personnel in Family Housing Management.
**MGT 415, Contract Preparation** (2 weeks): For architects and design engineers in EEP.
**MGT 416, Financial Management Applications** (2 weeks): For CE funds managers.
**MGT 420, Engineering and Environmental Planning Management Applications** (2 weeks): For chiefs of EEP branches.
**MGT 425, Contract Management** (2 weeks): For architects, construction management and design engineers in EEP.
**MGT 427, Fire Protection Management Applications** (2 weeks): For base fire chiefs and deputy fire chiefs.
**MGT 430, Operations Management Applications** (2 weeks): For chiefs and deputies of Operations branches.
**MGT 520, Environmental Planning** (3 weeks): For base development planners.

## 3700th Technical Training Group — Sheppard AFB, Texas

During the past year every course has been rewritten or revised. Some new courses have been added, others have been consolidated and a few deleted. An entirely new career field, Metal Fabrication (552X2), has been added. Most significant, about every course is shorter than previously, benefitting the field by putting personnel back on the job sooner.

Courses deleted include: 4AST54252 005, AUTODIN Uninterruptible Power; 3AZR54550, Refrigeration and Air Conditioning Controls (M-H); 3AZR54550 001, Refrigeration and Air Conditioning Controls (Johnson); 3AZR54550 002, Refrigeration and Air Conditioning Equipment; 3AZR54750, Central Heating Plant Specialist; and 4AST55570-1, BCE Planning Technician.

Six courses were added: 4AST32751 000, Corrosion Control Specialist; 4AST32751 002, Corrosion Control (Aircraft); 3AZR54070 000, Civil Engineering Solid State Applications;

# HNICAL COURSE OFFERINGS FY80

education courses and training opportunities for all of the engineering and services work force. Contact the School of Civil Engineering or any one of the three technical training centers for further information.

3ASR54750 001, Natural Gas Distribution Systems Maintenance; 3AAR55370 000, Site Development Technician; and 4AST55570 002, Engineered Performance Standards.

The BCE Supervisor Course is all new. It was completely rewritten to encompass the latest changes to **AFR 85-1** and **AFR 85-10.**

This training group is engaged in training personnel in basic, lateral, supplemental, advanced, and special courses in support of four Air Force Career Fields; Airman Aircraft Systems Maintenance (42); Airman Civil Engineering Mechanical/Electrical (54); Airman Civil Engineering Structural/Pavements (55); Airman Civil Engineering Sanitation (56).

**AFS 427X1, CORROSION CONTROL SPECIALIST/SUPERVISOR**
J3ABR42731 000—Corrosion Control Specialist—PDS Code AGZ (6 weeks)
J3AZR42751 000—Aircraft Corrosion Control—PDS Code E9N (1 week)
J4AST42751 000—Corrosion Control Specialist—PDS Code YDA (1 week)
J4AST42751 002—Corrosion Control (Aircraft)—PDS Code Y6Y (1 week)

**CE SOLID STATE APPLICATIONS**
J3AZR54070 000—CE Solid State Applications, PDS Code YR9 (4 weeks)

**AFS 541X0, MISSILE FACILITIES SPECIALIST/TECHNICIAN**
J3ABR54130E 000—Missile Facilities Specialist, LGM-25 (Operations) PDS Code VG7 (11 weeks 4 days)
J3ABR54130F 002—Missile Facilities Specialist, LGM-25 (Maintenance) PDS Code VHA (16 weeks)

**AFS 542X0, ELECTRICIAN/ELECTRICAL TECHNICIAN**
J3ABR54230 001—Electrician—PDS Code AJZ (6 weeks 4 days)
J2ASR54250 002—JSIIDS Installation and Maintenance—PDS Code T7N (2 weeks)
J3AZR54250 000—Intrusion Alarm Systems—PDS Code B8N (1 week 3 days)
J3AZR54250 002—Cathodic Protection Maintenance—PDS Code BKE (1 week 3 days)
J4AST54250 004—Fire Alarm Systems—PDS Code QJM (1 week 3 days)

**AFS 542X1, ELECTRIC POWER LINE SPECIALIST/TECHNICIAN**
J3ABR54231 000—Electric Power Line Specialist—PDS Code GBS (8 weeks)
J3AZR54251 000—Airfield Approach Lighting, Condenser Discharge—PDS Code C89 (1 week 3 days)
J3AZR54251 001—Electric Distribution System Maintenance—PDS Code EJ8 (5 weeks 2 days)

**AFS 542X2, ELECTRICAL POWER PRODUCTION SPECIALIST/TECHNICIAN**
J3ABR54232 001—Electrical Power Production Specialist—PDS Code ZBT (9 weeks)
J3AAR54272 001—Electrical Power Production Technician—PDS Code ZB5 (9 weeks)
J2ASR54252 000—Arresting Barriers—PDS Code LND (1 week 1 day)
J2ASR54272 000—Troubleshooting Electrical Power Generating Equipment—PDS Code ZBR (2 weeks)
J4AST54252 000—Aircraft Arresting Barriers, BAK-9/MA-1A—PDS Code G5G (1 week)
J4AST54252 001—Aircraft Arresting Barriers, BAK-12/MA-1A—PDS Code G58 (1 week 2 days)
J4AST54252 002—Aircraft Arresting Barrier, BAK-12—PDS Code DXO (1 week 1 day)

**AFS 545X0, REFRIGERATION AND AIR CONDITIONING SPECIALIST/TECHNICIAN**
J3ABR54530 001—Refrigeration and Air Conditioning Specialist—PDS Code YSX (10 weeks 3 days)
J3AAR54570 000—Refrigeration and Air Conditioning Technician—PDS Code YMN (10 weeks)
J3AZR54550 003—Air Conditioning Controls—PDS Code YSY (4 weeks 2 days)

**AFS 547X0, HEATING SYSTEMS SPECIALIST/TECHNICIAN**
J3ABR54730 001—Heating Systems Specialist—PDS Code YB9 (7 weeks 3 days)
J3AAR54770 000—Heating Systems Technician—PDS Code Y6D (5 weeks 4 days)
J2ASR54750 000—Boiler Water Treatment and Corrosion Control—PDS Code X9B (1 week 1 day)
J2ASR54750 001—Natural Gas Distribution Systems Maintenance—PDS Code 2FJ (2 weeks)

**CONTRACT CONSTRUCTION INSPECTOR**
J3AZR55000 000—Contract Construction Inspector—PDS Code BK5 (5 weeks 1 day)
J4AST55000 001—Contract Construction Inspector—PDS Code BK5 (2 weeks)

**BASE CIVIL ENGINEER SUPERVISOR**
J3AZR55000 002, Base Civil Engineer Supervisor—PDS Code Y6G (2 weeks 2 days)

**AFS 551X0, PAVEMENTS MAINTENANCE SPECIALIST/TECHNICIAN**
J3ABR55130 001, Pavements Maintenance Specialist—PDS Code YQM (4 weeks)
J3AAR55170 000—Pavements Maintenance Technician—PDS Code YT7 (3 weeks 2 days)

**AFS 551X1, CONSTRUCTION EQUIPMENT OPERATOR/TECHNICIAN**
J5ABA55131 000—Construction Equipment Operator—PDS Code AGV (Conducted at Fort Leonard Wood, Missouri) (8 weeks)
J4AST55151 012—Snow Removal Equipment—PDS Code UN8 (4 days)

**AFS 552X0, CARPENTRY SPECIALIST**
J3ABR55230 000—Carpentry Specialist—PDS Code NDZ (5 weeks 2 days)

**AFS 552X1, MASONRY SPECIALIST**
J3ABR55231 000—Masonry Specialist—PDS Code NDO (4 weeks 3 days)

**AFS 552X2, METAL FABRICATION SPECIALIST**
J3ABR55232 001—Metal Fabricating Specialist—PDS Code YF9 (7 weeks 2 days)

**AFS 552X4, PROTECTIVE COATING SPECIALIST/TECHNICIAN**
J3ABR55234 000—Protective Coating Specialist—PDS Code ASP (5 weeks)

**AFS 552X5, PLUMBING SPECIALIST/TECHNICIAN**
J3ABR55235 000—Plumbing Specialist—PDS Code ARL (5 weeks 2 days)

**AFS 553X0, SITE DEVELOPMENT SPECIALIST/TECHNICIAN**
J3ABR55330 001—Site Development Specialist—PDS Code Y35 (11 weeks)
J3AAR55370 000—Site Development Technician—PDS Code YSF (8 weeks 1 day)

**AFS 554X0, REAL ESTATE-COST MANAGEMENT ANALYSIS SPECIALIST/TECHNICIAN**
J3ABR55430 000—Real Estate-Cost Management Analysis Specialist—PDS Code HNN (3 weeks 4 days)
J3AZR55450 000—Industrial Engineering Techniques—PDS Code TFM (5 weeks)
J3AZR55470 000—Real Estate and Cost Management-BEAMS—PDS Code FQA (2 weeks)

**AFS 555X0, PROGRAMS AND WORK CONTROL SPECIALIST/TECHNICIAN**
J3ALR55530 003—Programs and Work Control Specialist—PDS Code G6J (6 weeks)
J3AZR55570 000—Programs and Work Control Technician-BEAMS—PDS Code FP9 (1 week 4 days)
J4AST55570 002—Engineered Performance Standards—PDS Code SSG (2 weeks)

**AFS 566X0, ENTOMOLOGY SPECIALIST/TECHNICIAN**
J3ABR56630 000—Entomology Specialist—PDS Code AJ4 (5 weeks 3 hours)
J2ASR56650 003—Application of Herbicides—PDS Code HE9 (3 weeks)
J3AZR56650 000—Disease Vector and Pest Control Technology—PDS Code N18 (4 weeks 2 days)
J4AST56650 001—Pest Control—PDS Code KK9 (2 weeks)
J4AST56650 004—Pesticide Application—PDS Code YDW (2 weeks)
J4AST56650 005—Vegetation Management—PDS Code VPQ (1 week)

**AFS 566X1, ENVIRONMENTAL SUPPORT SPECIALIST/TECHNICIAN**
J3ABR56631 000—Environmental Support Specialist—PDS Code AWT (7 weeks)
J3AZR56651 000—Waste Water Plant Operator—PDS Code CX5 (1 week 4 days)
J3AZR56651 001—Field Water Purification Plant Operation (600 GPH)—PDS Code EUF (4 days)
J3AZR56651 002—Water Plants and Systems—PDS Code VWW (3 weeks 3 days)

Inquiries relative to course content should be addressed to: 3770 Technical Training Group/CCE, Sheppard AFB TX 76311. Inquiries concerning availability of training allocations, funding, and request for training should be addressed to STTC/TTGX, Sheppard AFB TX 76311

## 3340th Technical Training Group — Chanute AFB, Illinois

The Aerospace Fire Protection Management and Technology Course (2ASR57150-015) is presently in the planning stage to train Air Force Contract Monitors for Air Force Systems Command. The course will familiarize AFSC inspector personnel with the knowledge and skills required to perform fire prevention inspections of new weapon systems under contract for the Air Force.

The Advanced Fire Protection Technology Course is presently in the planning stage, to train senior fire officials in command-control firefighting strategy. It will provide the knowledge and data for fire chiefs, deputies, and assistant chiefs to review and update fire tactics and strategies at their own installations throughout the Air Force. Course length is proposed to be ten days. The planned start date is early in FY 80. Course training standards are now under preparation for command coordination and field review. Fire situation trainer simulator is approximately 80% complete.

The following are updated fire protection course offerings:

**Fire Protection Specialist (Basic Course)**
(C3ABR57130-001) (6 wks, 1 day): Category A required for all new military airmen being assigned to the fire protection career field AFSC 571X0. Also available to new Army firefighters, new civilian hires within DOD and foreign students.

**Fire Protection Specialist (Munitions)**
(C3AZR57150-001) (1 wk, 2 days): AFSC 57150/70 or civilian equivalent in fire protection.

**A/S32P-4/P-2 Fire Truck Operation**
(C3AZR57150-000) (2 wks): AFSC 57150/70 or civilian equivalent in fire protection. Valid operator's permit authorizing operation of crash firefighting vehicles required.

**Firefighter Rescueman**
(C3AZR57150-003) (2 wks, 2 days): AFSC 57150/70 or civilian equivalent in fire protection. Must have valid operator's permit to operate rescue vehicles. Must have face shaven in such a manner not to interfere with the wearing of breathing apparatus.

**Fire Protection Inspector**
(C3AZR57170-003) (2 wks, 4 days): AFSC:57150/70/90 or civilian equivalent assigned or scheduled to be assigned to the fire prevention functional area.

**Fire Protection Supervisor**
(C3AAR57170-001) (3 wks): AFSC 57150 or higher with a minimum of three years continuous service in the firefighting organization and at least six months supervisory experience in one or more functions of a firefighting activity. SSgt or higher and GS-6 or higher. Foreign students must have an ECL of 70 or higher. NOTE: Upon activation of the new Advanced Fire Technology Course, this course will be discontinued.

**Fire Investigation**
(C3AZR57170-008) (1 wk, 3 days): AFSC 57170/90 or civilian equivalent with a minimum of three years experience in fire protection, or MAJCOM position in the fire protection or fire prevention functional areas.

**Crash Firefighter**
(C2ASR57150-004) (1 wk, 4 days): AFSC 571X0 military and civilians requiring basic training in crash firefighting.

**Fire Protection Specialist (AFRES)**
(C2ASR57150-004) (2 wks): Designed for Air Force Guard and Reserve Units requiring structural and aircraft crash firefighting training as a unit.

**Fire Suppression Operations**
(C2ASR57150-010) (2 wks): Designed for Army National Guard and Reserve units requiring structural and aircraft crash firefighting training as a unit.

**Fire Protection Orientation**
(C2ASR57150-012) (5 days): Designed for the Base Civil Engineer Officer (Fire Marshals) or officer personnel projected to assume the position.

**Structural Firefighting**
(C2ASR57150-013) (2 wks, 1 day): AFSC 571X0 military and civilians requiring basic training in structural firefighting.

**Aerospace Fire Protection Management and Technology**
(C2ASR57150-015): Presently in the planning stages. Course length is projected to be two weeks.

**A/S32P-2 Firefighting Vehicle Operator**
(C4AST57150-000) (1 wk, 3 days): Mobile Travel Team (Discouraged for CONUS use)

**A/S32P-4 Firefighting Vehicle Operation**
(C4AST57150-004) (1 wk, 3 days): Mobile Travel Team (Discouraged for CONUS use)

**A/S32P-15 Firefighting Vehicle Operator**
(C4AST57150-005) (1 wk, 3 days): Mobile Travel Team

## 3440th Technical Training Group — Lowry AFB, Colorado

The Services Training School has had an "expansion" year. Since last August, many new programs have been initiated. These training initiatives include new courses (Services Staff Officer, Billeting Management, Commissary Operations, and Food Service Officer). The modernization of existing courses, expansion of the Services Training Staff, establishment of a student recognition program, enhancement of the guest speaker program, development of motivational material (a film on Hennessy evaluation is in production), and application of computer technology to test analysis (to further improve the quality of instruction and testing).

Much has been accomplished in the past 12 months. More is planned. Watch the "chalkboard" for additional training announcements.

**30AR6211 000, Services Staff Officer**
(1 wk 2 days): Company grade Services officers with more than two years experience in the Services career field; top-three noncommissioned officers from the Services career field; field grade officers assigned to or being assigned to the Services career field. Provides training in the functional responsibilities of Services, role of consumer advocacy, management techniques, intra-base relations, facilities improvement, resources management, contracting, personnel management, pulse points and readiness.

**30BR6221 001, Services Operations Officer**
(3 wks): Lieutenant through Captain or civilians of equivalent grade assigned to or being assigned to Services Operations Officer position. Provides training in security, Services career field, consumer advocacy, intra-base relationships, Army and Air Force Exchange Service (AAFES), Air Force Commissary Service (AFCOMS), mortuary affairs, linen exchange, food service, billeting and furnishings management.

**20SR6221 000, Mortuary Officer**
(1 wk): Lieutenant through Lieutenant Colonel, and civilians of equivalent grade assigned or being assigned to mortuary affairs duty. Provides training in duties and responsibilities of Mortuary Officer, mortuary benefits and eligibility, care and disposition of remains, contract mortuary services, escort and transportation of remains, Military Honors Program, Summary Court Officer duties and case problems.

**30ZR6221 000, Billeting Management**
(3 wks): Officer, noncommissioned officer and civilian personnel in AFSC 622X, 61199 and 61170 assigned duties in billeting activities. Provides training in management and control of bachelor and transient quarters, programming and maintenance of quarters, nonappropriated fund management and accounting, labor management, supervisory skills, customer service, housekeeping management and general management techniques.

**30ZR6234 000, Commissary Operations**
(3 wks): Officer, noncommissioned officer and civilian personnel in AFSC 623X, 61199 and 61170 assigned duties in commissaries. Provides training in management and control of commissaries, organization, equipment and personnel management, requisitioning, receiving, warehousing, pricing procedures, issues, sales, display and merchandising, inventory and accounting procedures and commissary operating program.

**3AZR61170 003, Services Supervisor**
(1 wk 4 days): AFSC 16650 or higher and civilians of equivalent qualifications assigned to the Services career field. Provides training in property responsibility and supply discipline, Services career field, Air Force publications, personnel relations and management, consumer advocacy and management responsibilities, billeting furnishings management, and mortuary affairs.

**30BR6241 000, Food Service Officer**
(2 wks): For all food service officers and civilians (GS-7 or above) assigned to equivalent positions. Provides training in security, base services organizations, analysis of food service operation, principles of food service operations, management fundamentals, relations with base activities, consumer advocacy, resource management principles of contract administration, human behavior and management techniques, facility improvement, specific responsibilities of the food service officer and key management indicators.

**3AAR62270 000, Food Service Supervisor**
(3 wks): Sergeant or higher in second or subsequent enlistment at the 5-skill level and assigned as dining hall superintendent or food service superintendent or food service NCOIC, and civilians with comparable qualifications and position. Provides training in career field progression; human behavior and management techniques in food service; food service publications; maintenance of AF publications; revision of USAF worldwide menu; Consumer Level Quality Audit Program (COLEQUAP); subsistence records and accountable forms; preparation of cook's worksheet; food service operations report; nutrition, sanitation and dining hall safety; obtaining and accounting for equipment and supplies; baking; flight and missile feeding; energy conservation; food service contracts; storeroom procedures; inspecting food service activities; evaluating performance of personnel and dining hall facilities.

**3ABR62230 000, Food Service Specialist**
(8 wks 4 days): Basic course, no grade or skill level prerequisites. Trains students to prepare, cook, and serve food according to standard recipes. Operate, clean, and maintain kitchen and dining hall equipment; prepare and decorate bakery items. Operate, maintain, and clean bakery equipment.

**3AQR62231 000, Diet Therapy**
(8 wks 4 days): Same as 3ABR62230 000. Students taught Food Service fundamentals then attend Diet Therapy Specialist Training at Sheppard AFB, Texas. These Career Development Courses are offered through the Extension Course Institute:

**CDC 61130, Apprentice Services Specialist**
Introduction to the Services career field; fundamentals of merchandising; commissary and commissary store and base linen control.

**CDC 61150, Services Specialist**
Role of specialist; linen exchange systems; commissary organization and functions; determining requirements and requisitioning subsistence; receiving and warehousing operations; and issues and sales.

(*Continued on Page 33*)

An organization's image is only as good as the people working in it. Creative approaches to building and maintaining a good image for the people of an organization can be valuable management tools.

# POST JOB CRITIQUE:

# IMPROVING OUR SELF IMAGE

by Eric Stephens

Disrupted interpersonal relationships between various segments of a Base Civil Engineering organization can seriously degrade the organization's goal of providing the best service possible to the customer. The relationships appear to go beyond mere personality differences; they involve groups of individuals reacting as a group. Although the reactions aren't necessarily blatant or obvious, their effect reveals a lack of communication and coordination between important assets in the organization.

At Bolling AFB, DC, I discovered a problem between our planners and shop people when reviewing the Base Civil Engineering Cost Limitations Comparison Listing. This report identified Work Orders which had significantly overrun the planning estimate. I monitored this product for several months, asking many questions along the way. When the planners were approached, they answered generally, "The shops did . . ." followed by the reasons why the shops didn't fall within the planned estimate. Shop people answered questions put to them in a much different way. They pointed out that the real problem was "the inaccurate and unrealistic estimates by the planners."

This scenario is not new.

At first, I thought the problem only involved a few personality clashes until I started seeing a trend. It didn't matter to whom I talked in Planning or Operations; the answers were the same. One group always pointed a finger at the other guy. Each side had the other stereotyped.

Having served in the organization for several years, I respected and knew the capabilities of many of the people involved. All were proficient in their respective jobs and all kept the best interests of the organization in the proper priority. Armed with two sets of conflicting data, I realized a deeper problem separated the two groups. Additional study and talking confirmed my suspicion: **The problem was a basic lack of communication between individuals in Operations and Planning.**

Once the "problem" was out in the open, the more difficult task was to "mend fences" by getting the two groups to talk. I reasoned that the best way was direct confrontation between the two groups with myself as a mediator. This idea expanded into the Post Job Critique.

Using the Cost Limitation Comparison Listing as a source document, selected a "broken" job for discussion. I invited the planner who estimated the job, his boss, the on-site coordinator and the respective superintendent or foreman who monitored the job. I also put out a short letter describing the intent of the Post Job Critique. The objectives were to:

- Review the job in total;
- Limit comment to constructive criticism only;
- Create a positive atmosphere, not a "Black Hat" approach; and
- Use the time as a learning experience.

Prior to the meeting, I reviewed the Work Order folder and the labor printout from Production Control which broke out actual hours and materials expended by the shop along with the estimates.

I opened the meeting by emphasizing the positive aspects of the critique and that it was to be used as a learning experience. It is human to make mistakes but to make the same mistake repeatedly is not acceptable. With this philosophy, I stepped back and let the verbiage flow.

During the review, the shop people admitted they thought

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the planner did a good job estimating the project. Further discussion revealed several "explanations" for the overruns:

- The 561 (BCE Weekly Work Schedule) didn't agree with the time on the 1734 (BCE Daily Work Schedule) and that which was input into the computer. In reality, more hours were input than were actually expended.
- A pipe was put in at a wrong elevation and a portion had to be reaccomplished.

This example was the first job we reviewed. In the past eight months we have held Post Job Critiques on several others. Their frequency has been almost monthly. Other problems identified during the critiques have been:

- Wrong material ordered;
- Wrong material used on the job;
- Poor labor reporting;
- Wrong crew size estimated; and
- Wrong crew size used.

In four of the five instances above, the word "wrong" was used several times. The critique group, using hindsight, agreed that the job was performed wrong in one way or another.

I emphasized that there are many ways to do any job but there is usually a most efficient way. Our job is to find that way and use it. By using the Post Job Critique we can avoid "reinventing the wheel" with each new job and learn from our mistakes and our experiences, both good and bad.

The positive aspects that have come from the Post Job Critique include:

- Communication was increased between the Planners and Shop people during the job planning phase. This leads to a better estimate and more efficient ways to do a job.
- Coordination between the same people during the job accomplishment phase is more pronounced now. Planners now visit the job site periodically to review jobs and the shops ask for help when necessary.
- There is a growing feeling that "we are in this together" instead of the adversary situation that existed in the past.

While the Post Job Critique has only been in effect a short time, we feel the time spent in "another" meeting is paying the organization significant benefits. With people communicating more freely and frequently, problems are resolved at the lower level of the organization before management attention is necessary. This helps put the responsibility where it belongs and frees Base Civil Engineering management to work the more significant problems.

During the time the Post Job Critique has been used at Bolling AFB, I have come to the realization that my time is well spent if I can just get people to communicate. Even though I may not always be directly involved in the decisions that are made, if I have acted as a catalyst to the communication process, I feel I have accomplished a big part of my job.

If you think this approach can be used in your organization, think about yet another option. The same critique idea can be used on construction contracts between the design engineer and the construction inspector. In this instance, constructive changes, change orders or any other deviations should be reviewed. The young engineer can benefit greatly from this type of critique if the review is accomplished with a positive, constructive attitude. If improved communications result from this type of critique, it can be a valuable management tool that is relatively easy to implement.

Wing Headquarters Before.

Wing Headquarters After.

Close-up view of entry to Wing Headquarters.

# The Image of a

**The challenge at Moody AFB was to change 56,000 square feet of administrative and morale, welfare and recreational space located in six facilities into a design compatible with rustic southern Georgia and the realities of mission support construction. Here's how a design team performed to produce an award-winning project.**

**by Lt Col Robert H. Lynch**

When Moody AFB, Georgia—a training base that historically has had a background dictated by surges in National Defense activities—was finally named to become a permanent home for a Tactical Fighter Wing, several problems surfaced. Perhaps the most important to civil engineers was: how do you bring the "off the flightline" facilities up-to-speed as quickly as the high priority MCP-and P341-backed direct mission support projects? A combined design team, made up of two persons each from the 347 Civil Engineering Squadron and HQ Tactical Air Command, tackled this problem in 1976. Their combined efforts produced an award winning project which modernized 56,000 square feet of floor space in six older buildings that complemented the new facilities constructed for the beddown of the Tactical Fighter Wing.

Construction of a Twin Engine Training School began at Moody AFB in June 1941 on 9,000 acres of Federal property. The new base grew quickly, attaining an average population of 4,000 officers, enlisted personnel and cadets throughout World War II. With cessation of hostilities, the base was closed in 1946; it was reopened in 1951 with the outbreak of the Korean conflict. The base continued the training mission from 1951 until 1975; however, the rapid changes in defense posture during this period resulted in the base becoming the home of eight different aircraft in 24 years. In general, facility improvements dealt with the problems created by changes in aerospace equipment. With the phasedown of the Vietnam war, and an excess of UPT bases from 1973 through 1975, facility improvement was at a standstill.

In December 1975, a Tactical Fighter Wing breathed new life into the quiet air base. Facility requirements in direct support of the flying mission leapt to a new high. In FY 1978, 188,000 square feet of new construction was accepted by the operational wing. However, as excavation began for the required maintenance and operation facilities, it became obvious that while the facilities for direct, mission-related functions were ready for the 1980s, the 1941 vintage space for command and staff functions, and morale, welfare and recreational facilities, were an eyesore which detracted from the image of a revitalized air base. The challenge was to change 56,000 square feet of administrative and morale, welfare and recreational space located in six facilities forming the base's central ellipse into a design compatible with rustic southern Georgia and the

Recreation Center Entrance After.

Recreation Center Before.

Recreation Center After.

# Revitalized Base

realities of mission support construction.

The design team had to resolve a problem dictated by five criteria:

- Repair the existing exterior with a relatively maintenance free material;
- Follow the base master and beautification plans to make each facility stand alone, and at the same time, be an integral member of the ellipse;
- Blend the natural setting of the site and adjacent building design to develop proper design, material selection and color;
- Incorporate energy conservation and natural lighting without destroying the visual integrity of the facility and the occupant's view to the outside; and
- Provide a facility that is easy to maintain within the prescribed mandates for a repair project.

The existing facilities were of asbestos shingle siding, deteriorated asphalt roofing, and exposed soffit beams serving as the overhangs on the buildings. All facilities required painting, but were in good structural condition. The chapel, communications center and open mess, surrounding the renovation site, dictated a natural, pleasing appearance for the facilities.

Actual building design was resolved as follows: Texture 1-11 plywood siding was chosen as natural exterior finish. This siding was furred out from the existing wall finish. Trim was used to finish and accent corners and windows. The soffits were converted, allowing for less heat gain and loss in the attic space. Damaged roof decking was replaced with roofing reaccomplished with shingles. Tinted, double glazed, stock aluminum windows were chosen to increase energy efficiency and conformed to the floor plans which had been altered over the years.

Color also played an important part in the overall design package. The colors were selected from natural earth tones with trim color matching or compatible with each main color. Each color was chosen to enhance the building on the site.

Each facility was designed to bring out its importance and function. For instance, the Wing Headquarters building was designed to make it stand out from the other five facilities, yet be compatible. The base library was designed for quiet, with the recreational center designed for the vigorous pace of the youngsters served.

Wide ranging design considerations within the framework of Air Force policy governing repair work were taken into account in the philosophy, concept and application. The design package represented an inexpensive recycle program for vitally needed floor space. E&S

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# FMIs: To Improve the Work Environment

**by Maj Jack L. Joines, PE**

The image of IG team members has been characterized as snooping busybodies who are armed with massive checklists to examine files, forms and records for evidence of non-compliance. As far as the IG is concerned that picture is as out-of-date as the nickel cup of coffee.

Inspectors have long been characterized as snooping busybodies, armed with massive checklists with which they examine files, forms and records for minute evidence of noncompliance. As far as the Air Force Inspector General (AFIG) function is concerned, that mental picture of a Headquarters US Air Force inspector is about as out-of-date as the nickel cup of coffee.

The Engineering and Services Branch of the Air Force Inspector General's Inspection Directorate now devotes its efforts almost totally to **functional management inspections** (FMIs). FMIs are designed to look both horizontally and vertically at various pieces of the Air Force Civil Engineering and Services management system and determine whether the pieces of the system are efficiently and effectively supporting the Air Force mission. The primary purpose of FMIs is to identify management system problems and propose corrective actions requiring major command or Air Staff action. The inspections attempt to focus on areas within Engineering and Services where there are indications that the system is not producing a cost effective product.

Senior Air Force managers are genuinely concerned about how effectively our resources are being used to support the Air Force mission. It has been said, "There is nothing more wasteful than doing something well that doesn't need doing!" FMIs are based on an open-minded philosophy that there is no program, method or system of doing things in the Air Force that can't be improved. The entire FMI is based on two questions: **Why?** and **What's the impact?** Why are we doing it this way, and what's the impact if we did it a different way or if we didn't do it at all? These two questions are asked throughout the FMI from the technicians in the trenches on the bottom to the Air Staff agencies on top. The answers to **Why?** and **What's the impact?** have uncovered some very interesting aspects: management systems that are unnecessarily complex, reports that no one reads, and generations of data that no one uses.

The first and most difficult step is to select a meaningful inspection subject. Selection of a good subject involves much research into many areas and lots of leg work. Sources of subjects include major command Inspector General reports, Civil Engineering and Services Management Evaluation Team reports, and Air Force wide questionnaire results that reflect common deficiencies or problem areas. In addition, Air Staff, major command, and base level Civil Engineering and Services counterparts provide the AFIG with inputs on areas that might be worthy of an in-depth inspection. The key issue is always payoff, not necessarily in dollars but in better management, more responsive systems and better quality of Air Force life.

As a topic emerges as a possible inspection subject, the inspectors who will accomplish the FMI conduct data gathering/coordination trips to bases, major commands, the Air Staff, special activities, professional schools, workshops, seminars, civilian institutions, and other information or background sources. This process insures that the inspectors are up-to-speed on background, current policies and organizational interfaces of the proposed inspection topic.

When an inspector has become familiar with the topic, a formal inspection proposal is developed which defines the specific areas to be looked at as well as the limits of the inspection. The proposal is then reviewed by a corporate body of division chiefs within the Air Force Inspection and Safety Center (AFISC) to evaluate probable outcome, detect overlapping subjects, eliminate unpromising subjects and assign priorities. The proposal is then subjected to an approval process involving the Director of Inspection, the Commander of the AFISC, and The Inspector General, US Air Force. Concurrent with the approval process, the proposal is informally coordinated with the Air Staff and various other agencies involved in the area to be inspected.

Once the inspection proposal is approved, the team composition is finalized and normally consists of from two to six people. Because of the wide variety of subjects addressed and the fact that many civil en-

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gineering and services systems often interface directly with other functional areas, AFIG personnel from collateral functional areas as well as experts from bases, major commands and the Air Force Engineering and Services Center are often used to augment the inspection team.

The inspection at each location takes from three to five days depending on the complexity of the subject. The word "inspection" is perhaps inappropriate because the process is really more of a frank discussion with the people who live and work with the system being evaluated. The bottom line is: what's good about the system, what's bad about the system, and is there some way to do it better with fewer resources.

The inspection at each location normally results in a field memorandum that is left with the inspected activity. Information copies of the field memorandum are provided to intermediate and major command headquarters. The field memorandum identifies major problems observed, the conditions or facts that substantiate that there is a problem, the impact if the problem is not corrected, what has caused the problem, and the inspection team's recommendations for fixing the problem. There is no requirement for the unit or activity inspected to answer the field memorandum to the AFIG. In addition to the field memorandum, most teams also leave an informal list of observations of a technical nature with the Base Civil Engineer or Services officer. The observations are between the inspectors and the people being inspected and are provided to the managers to help improve their operation.

Throughout the inspection, the inspection team stays in touch with Air Staff and major command middle managers responsible for the program or system being inspected. This includes a visit at the end of the field phase to validate findings. In this way, middle managers are kept informed, surprises are eliminated and many problem fixes are initiated before the final inspection report is published.

The time required—from commencement of the field effort to publication of the final report—usually takes four to eight months. The final report is in two parts: one contains a summary of the most significant issues identified during the inspection, and the other contains the detailed findings and facts which substantiate those findings as well as recommendations for correction of deficiencies. The report is normally distributed to Air Staff agencies and major command Inspectors General only.

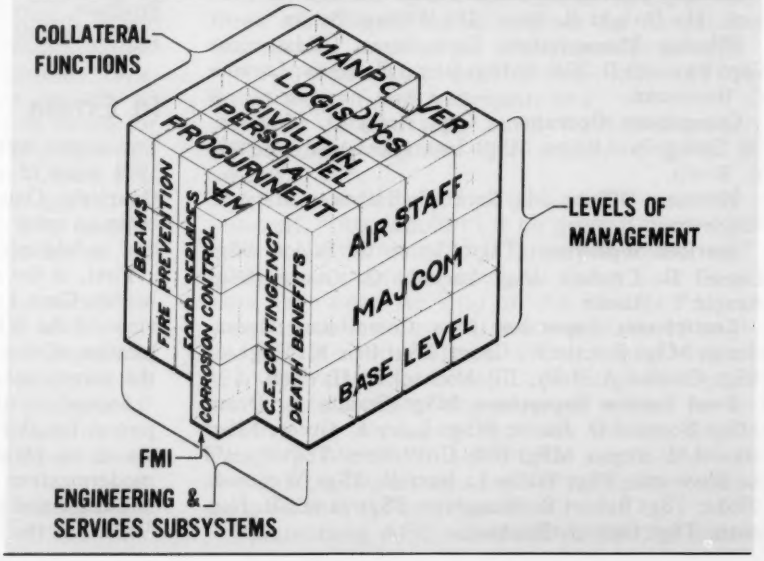
In the past three years, the AFIG has looked at several pieces of the Civil Engineering and Services functional area under the FMI concept. We feel these efforts have helped to improve not only the way we do business within Civil Engineering and Services but, more importantly, the quality of service provided to our customers.

Using the FMI concept, the AFIG has looked at

- **The Base Engineer Automated Management System (BEAMS);**
- **Food Service Management;**
- **Engineering and Services Contingency Capability;**
- **Billeting Management;**
- **Air Force Fire Prevention;**
- **Military Death Benefits and Assistance Program; and**
- **Civil Engineering Corrosion Control.**

In all of these inspections, system deficiencies and their causes have been identified, which, when corrected, will result in more efficient and effective programs that better support the Air Force mission.

In summary, the Engineering and Services Branch of the Air Force Inspector General's Inspection Directorate feels that FMIs are helping to improve the Civil Engineering and Services work environment. The results of these inspections should help us eliminate some things that are no longer necessary and do the essential things even better.



# WORTH NOTING

## Heat Recovery a Success At Sheppard AFB Commissary

A successful refrigeration heat recovery system is in effect at the Sheppard AFB, Texas, commissary. It was installed in February and was operational for the commissary opening in March. During the operational testing of the system, no problems occurred, and the store opening was a tremendous success for heat recovery.

Approximately 77 percent of the commissary's heating requirement is supplied by heat rejected from the refrigeration equipment which cools the display cases and walk-in units.

At the same time, the air conditioning unit, sized at a combined peak capacity of 106 tons, operates at only 77.2 tons because of an overspill of cold air from the refrigerated display cases.

With the government's program focusing on less expensive energy sources, more attention needs to be given to both new facility and retrofit applications of heat recovery programs for large energy consumers, such as grocery stores. This can provide a 30-70 percent energy reduction, resulting in millions of barrels of oil per year saved.

## Lowry Technical Training Center Honors 66 Services Personnel

Sixty-six Services officers, airmen and civilians graduated with honors or were selected for special citations for 1978 at Lowry Technical Training Center, Lowry AFB, Colorado.

Honor graduates in the following courses are:

**Services Operations Officer:** Capt Christie C. Peacock; 1Lt Dwight R. Ness; 2Lt William Banks.

**Billeting Management:** Capt Susan Christensen; Capt Kenneth D. Hill; SMSgt Glenn H. Lewis; Loraine C. Buchanan.

**Commissary Operations:** Capt Harry O. Mamaux, III; SMSgt Paul Rains; MSgt James R. Leahey; Robert E. Bowls.

**Mortuary Officer:** Maj Jack W. Barbeau; Mary R. Singleton.

**Services Supervisor:** TSgt Clinton G. Saylor; SSgt Lonnel D. Crudup; SSgt Lucinda C. Gonce; SSgt Arnold T. Hunter.

**Commissary Supervisor** (now Commissary Operations): MSgt Ronnie W. Grove; SSgt Oris M. Hughes; SSgt Charles A. Jolly, III; Michael A. Havican.

**Food Service Supervisor:** MSgt Francis X. Dean; MSgt Bernard D. Dunn; MSgt Larry L. Greer; MSgt Daniel M. Regan; MSgt Billy C. Wolters; TSgt Ronald L. Bosworth; TSgt Willie L. Burrell; TSgt Wayne J. Finke; TSgt Robert D. Musgrove; TSgt James R. Norman; TSgt Gary J. Ritchie.

**Food Service Specialist:** TSgt Dale G. Sandusky; Sgt William G. Crandall; SRA Elizabeth J. Hart; AB Laurel A. Foster; AB Sandra C. Jones; AB Beverly D. Atwell; AB Michael E. Bowden; AB David J. Burt; AB Jack W. Eells; AB George J. Fust; AB Terile F. Kennedy; AB David G. McKeown; AB David P. Norman; AB Maurice Womack; AB Cynthia L. Bishop; AB Seven G. Peach; AB Bernadine Brown; AB Eric A. Host; AB Candace Nelson; AB Paul Palmer; AB Joanne Roger.

**Diet Therapy Specialist:** A1C Patricia D. Cook; AB Ronald J. Hitchcock; AB James W. Lohry.

Special citations, **Food Service Student Airman of the Month,** include: ABs Mark Mercier; David Sherber; Barbara Dippel; Michael Fahey; David King; Jacqueline Box; David Burt; Robert Wilson; James Lohry; Betty J. Lafortune.

## Air Force Seeks AIA Assistance in Two Areas

Brig Gen Clifton D. Wright, Commander of the Air Force Engineering and Services Center, Tyndall AFB, Florida, met in late May with representatives of the national American Institute of Architects (AIA) to request assistance in conducting the annual Air Force Design Awards Program. Having members of this civilian design community on the jury will insure that Air Force design criteria meet the highest professional standards.

Also discussed were methods of insuring certification of experience required for registration. An effort will be made to coordinate Air Force internship activities with the new AIA Intern-Architect Development Program. Commands will be apprised as these programs develop.

## In Errata

Two errors were noted after publication of the May 1979 issue of the **Air Force Engineering & Services Quarterly.** One was a case of mistaken identity, the other an error of omission. For both, we ask our readers' indulgence.

First, in the article entitled "From the Inside Out," by Mr Gary Lynn, four artist's drawings of interior views of the Wilford Hall Medical Clinic, identified the location of that facility as Randolph AFB. Of course, the correct location is Lackland AFB.

Second, in the article "Dining Hall Upgrade Project: A Tough Recipe" by Capt James Waltman, a series of six photographs were published depicting the modernization of the dining hall at Whiteman AFB. We neglected to credit Mr George Schaefer, HQ SAC/DEEB, as the contributor of the photos in the article.

Some 15 Air Force Civil Engineers are working full time on the Space Shuttle with many others assisting. Basically their tasks are to plan for and acquire the necessary facilities for the Shuttle Program. It's another example of enhancing the professional image of civil engineering.

# The Space Shuttle Goes West

**by Lt Col Raymond E. Rodgers, Jr, PE, and Lt Col Tyler Jackson, PE**

A Presidential Task Group began planning in February 1969 for the US space program in the post-Apollo period and eventually recommended a reusable space launch system. In January 1972, the President approved this system capable of providing economical routine access to space for National Aeronautics and Space Administration (NASA) and Department of Defense (DOD) missions. In April 1972, DOD and NASA agreed on Kennedy Space Center, Florida, as the eastern launch site and Vandenberg AFB, California, as the west coast site.

A totally new concept in space systems, the Shuttle is a manned, reusable vehicle which will launch like a missile, perform on-orbit operations and return to earth like a glider. Ultimately the Shuttle will provide an enhanced means of delivering and recovering navigational, communication, meteorological, defense and other scientific satellites.

The Shuttle Launch Vehicle has three main components:

- **An Orbiter about the size of a DC-9, with three main liquid-fueled engines for ascent and two smaller engines for orbital maneuvering;**
- **An expendable external fuel tank (ET) for liquid oxygen and hydrogen;** and
- **Two recoverable Solid Rocket Boosters (SRBs) that augment the orbiter engines on takeoff.**

At this point, some of you may be saying to yourself, "Ah, wouldn't it be great if civil engineers could be involved in a program like that?" Well, as a matter of fact, Air Force Civil Engineers have been working on the Shuttle Program from its earliest days. At present, some 15 engineers within the Space and Missile System (SAMSO) Directorate of Civil Engineering are working full time on the program to plan for and acquire the necessary facilities for the Shuttle Program. Most of this effort has centered around the Shuttle launch and recovery site at Vandenberg AFB and Port Hueneme.

Vandenberg AFB was selected for the second

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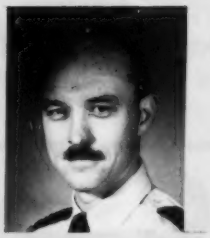


**COLONEL JACKSON** *is Chief, Space Transportation System Project Engineering, Directorate of Civil Engineering, Headquarters Space and Missile Systems Organization, Los Angeles. Both his master's and doctorate degrees in civil engineering were earned at the University of Illinois. He is a registered Professional Engineer in Illinois.*

launch and recovery site primarily because it provides over water polar launch azimuths which complement KSC's equatorial launch azimuth capability. Its existing landing and launch facilities were contributing selection factors.

To provide an appreciation for the magnitude of the facility acquisition task, a brief description of the ground operations and associated facilities follows. Vandenberg AFB flight support operations begin at the proposed 15,000 foot PCC runway where an Orbiter will be delivered by Boeing 747 to the gantry-like Mate-Demate facility. After each mission, the Orbiter will land on the runway and be towed to a new 40,000 square foot Safing and Deservicing facility for ordinance and fuel systems safing. It will then be transferred to the 50,000 square foot Orbiter Maintenance and Checkout facility for payload removal and deservicing and Orbiter refurbishment. Next, the Orbiter will be towed on a transporter over 15 miles of modified existing roads to the launch pad, Space Launch Complex-6.

The SRBs will arrive in segments by rail and be processed and stored in a 114,000 square foot SRB Subassembly and Storage facility before being moved to the launch pad for stacking. After burnout and a parachute slowed splashdown, these 12 foot diameter, 149 foot long SRBs will be towed to Port Hueneme, 100 miles south of Vandenberg AFB, for wash down and disassembly before shipment to the manufacturer for reloading.

Transportation to Vandenberg AFB of the 28 foot diameter, 154 foot long ETs posed difficulties at the onset of Shuttle ground support development. Numerous modes (airlift, rail, hovercraft and balloon) were studied before deciding on barging the ETs to a protected landing site at south Vandenberg AFB. The dolly mounted ETs are then towed to a new 57,000 square foot Tank Checkout and Storage facility for processing prior to erection on the pad.

The launch pad assembly starts with SRBs stacking on the 30 foot high steel Launch Mount followed by mating of the ET to the SRBs and Orbiter mating to the ET. Payload insertion and last minute checks are then performed before loading the liquid hydrogen and oxygen fuels. One hour before launch the crew enters the Orbiter through an access tower. At launch the Orbiter engines are first started and brought to full power before firing the SRBs which begins the lift off. The pad facilities are designed to require only minor refurbishment during the planned minimum of 208 hours between launches.

The present launch pad requires extensive modifications and new construction. The existing SLC-6 facilities were built for the Manned Orbiting Laboratory Program in the late 1960s and abandoned before use when that program was cancelled. Major areas of work to be done include: modification of the existing exhaust duct for the shuttle main engines and two new SRB exhaust ducts; modification of the existing 415 foot high Mobile Service Tower (MST) for stacking the SRBs; a new three cell payload preparation facility; a new mobile 200 foot high Payload Changeout Room for erecting the Orbiter and ET and later transferring the payloads into the Orbiter; a new crew Access Tower; a new Launch Mount; and a modified Launch Control Center.

Utilities, logistics, flight crew systems and other support work round out the total construction package estimated at approximately $306 million. **Figure 1** is an artist's concept of the completed complex.

Initially programed in the FY 1979 and 80 MCPs, the program is now spread over five years —FY 1979-83. At present, the launch pad complex is on the "critical path" to completion and the Orbiter processing facilities are not far behind. The acquisition process follows the normal pattern of requirements definition, criteria development, facility design and construction. Support equipment installation and checkout followed by system testing with the associated vehicle hardware complete the activation process.

NASA plans to build up the vehicle in their Vehicle Assembly building and transfer it to the pad via a Mobile Launch Platform for subsequent launch (Integrate-Transfer-Launch). On the other hand, an in-house Air Force study in 1974 recommended minimizing the Vandenberg AFB cost through maximum use of existing facilities which calls for processing the vehicle components in offline facilities and then assembling them on pad. This Integrate-On-Pad approach was adopted as the plan for Vandenberg AFB. Civil engineering inputs on facility costs, schedule impacts and technical problems were primary considerations

by the System Program Office director along with safety, operations, support equipment, logistics, etc., in determining overall program direction. Following initial concept studies and baseline selection, the next step was to define the basic requirements which the NASA controlled flight vehicle and its support equipment would impose on the ground system.

Requirements definition has been a slow, iterative process. The first requirements documents were filled with "TBDs" (To Be Determined) which have gradually been filled in as the vehicle and support equipment development evolved. Early facility cost estimates were low and had to be raised as the system matured. Inflation exceeded standard DOD projections which raised MCP estimates from one budget cycle to the next.

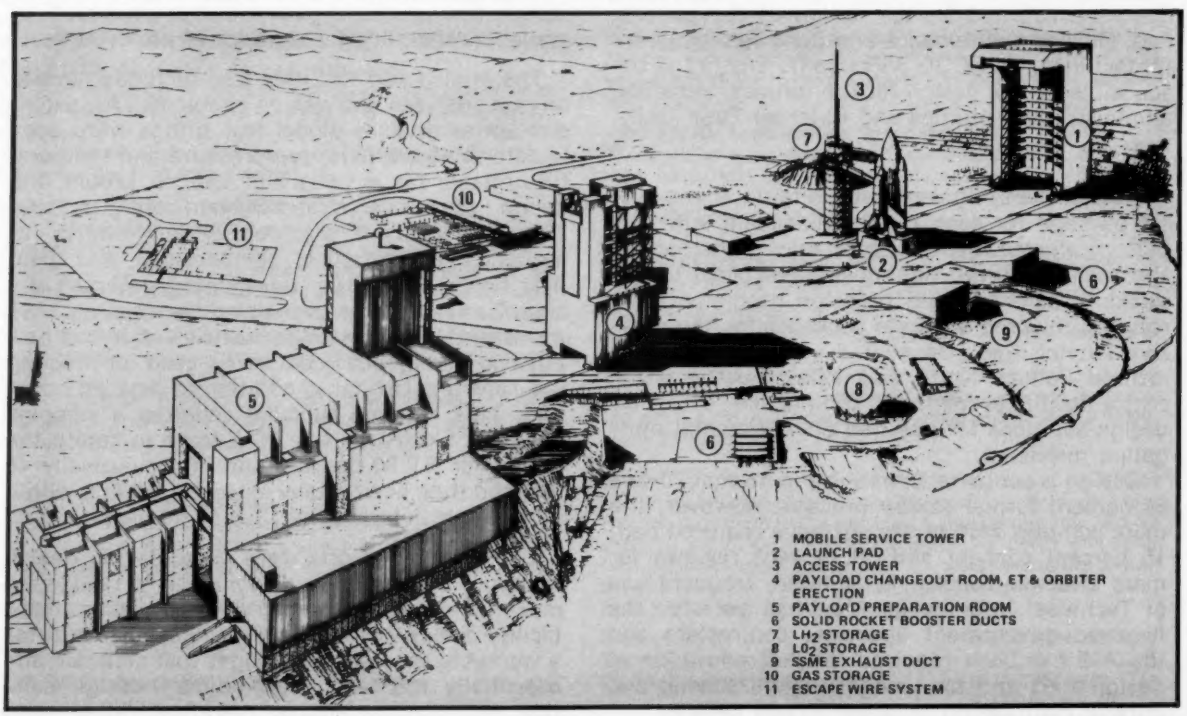
Once requirements documents were completed, facility design criteria development started. This criteria took the form of Facility Development Specifications, and were produced by the integrating contractor under program office direction. Higher headquarters approval to use these documents in lieu of project books saved a considerable amount of paperwork. Upon approval, these specifications became the facility baseline which can only be changed through a formal configuration control process designed to insure that cost, safety, operations and support equipment impacts are considered fully prior to implementing any change.

The management structure that has evolved for shuttle facilities acquisition at Vandenberg AFB is unique. The Air Force was granted design agency responsibilities for the launch complex itself due to its close interface with the vehicle hardware. The Sacramento District of the Corps of Engineers is the Design Agent for the rest of the Vandenberg AFB projects and the Western Division of the Navy Facilities Engineering Command is responsible for the Port Hueneme facilities. The Los Angeles District of the COE was designated as the construction agent for Vandenberg AFB. Headquarters Air Force Systems Command is the AFRCE for the program, and has delegated much of its responsibility to SAMSO/DE.

To provide an adequate management structure for the program, much detailed planning was accomplished. A team approach was used, integrating civil engineering, COE, Program Office and Contractor personnel. A Shuttle branch within SAMSO Civil Engineering at Los Angeles oversees the facility programming and design aspects of the entire program at all locations with another branch at Vandenberg AFB for construction management.

At the beginning of design, the COE agreed to establish an office within SAMSO for liaison and design management. This COE office has worked extremely well in providing close coordination and rapid response to problems.

Figure 1: Artist's concept of the completed complex at Vandenberg AFB.


1 MOBILE SERVICE TOWER
2 LAUNCH PAD
3 ACCESS TOWER
4 PAYLOAD CHANGEOUT ROOM, ET & ORBITER ERECTION
5 PAYLOAD PREPARATION ROOM
6 SOLID ROCKET BOOSTER DUCTS
7 $LH_2$ STORAGE
8 $LO_2$ STORAGE
9 SSME EXHAUST DUCT
10 GAS STORAGE
11 ESCAPE WIRE SYSTEM

A project normally has one each design agent, A-E, AFRCE, construction agent, contractor and using agency resulting in about 15 possible interfaces. On this large program, we have three design agents, seven A-Es, one AFRCE, two construction agents, approximately 20 contractors and six principle using agencies for a total of 741 theoretically possible interfaces! Of course, all of these are not operative, but this complex communications net serves to illustrate the management complexity of the STS program experienced by the civil engineers.

Maintaining a realistic facility design and construction schedule for the program has been difficult and challenging. On the front end, budget constraints tend to defer construction into later years to the maximum extent possible and criteria deficiencies and major requirements changes have further delayed the start of design in several instances. The program is of such a dynamic nature that major changes impacting facilities acquisition continue to occur. On the downstream end, the operational need date has remained relatively firm and further definition of SE installation time requirements has identified earlier Beneficial Occupancy Date needs for some facilities. To keep track of these schedules, SAMSO/DE uses an in-house computerized management information system which is easily updated monthly to provide selected information as required from a common data base.

Facility design is being done by a mix of A-E firms and COE in-house groups. A-E firms with extensive experience in missile and space facilities were selected for the design of the Launch Pad, Orbiter maintenance and Solid Rocket Booster facilities. The COE Sacramento District is responsible for the design for the runway, logistics, administrative, utilities and External Tank facilities.

Most of the design work is being done in a single package for each facility consistent with the COE preferred general contractor construction approach. However, tight design and construction schedule demands and redesign problems have resulted in three separate packages for the massive Launch Pad. Unusual design requirements include Failure Mode and Effect Analyses for critical facility systems and compliance reports on design solutions for required environmental mitigation measures.

Design is controlled through the normal 30 and 90 percent formal review process. However, the more complex facility designs have required both 15 percent concept and 60 percent reviews for more effective control. In addition, frequent use of Technical Interchange Meetings between the involved government agencies, contractors and the A-E has been required for A-E education at design start and for timely problem solving and criteria clarification between formal reviews.

A number of challenging engineering problems has arisen requiring modification of conventional design practices or state-of-the-art extensions. For large volume clean rooms with low activity and short payload exposure times the normal air change requirements were cut in half. Runway pavement thickness was increased over that required by conventional design to accommodate extremely high dynamic gear loads from unusual Orbiter landing characteristics. Concern over launch exhaust blast vibrations in the Payload Preparation Facility located 800 feet from the Launch Mount required an extensive study of acoustic sources and transmission paths. Conventional wind load data sources proved inadequate for assessing loads on the irregular shaped MST and PCR, and required wind tunnel studies.

Special considerations were required for a number of design problems. Concrete paving was chosen over asphalt for the runway to reduce potential explosive hazards from a liquid oxygen spill on asphalt in the event of an emergency landing and for maintainability. At the launch pad, as-built deficiencies in the MST space frame require a combination of overall structural shortening, existing joint reinforcement and added diagonal bracing to improve load flow paths and relieve overstress. At the ET barge landing site, concern over frequency and magnitude of long period waves has required an extended wave data collection effort and study to determine need for a breakwater extension. For the required high reliability power a redundant commercial feeder system was chosen over an alternate backup diesel generator system based on available reliability data and lower life cycle cost.

The launch pad facilities also included several unique analyses and design problems. An extensive series of scale model test firings were used to determine acoustic, overpressure and temperature effects for a variety of Launch Mount and Sound Suppression Water System configurations. Test data analysis provided design criteria for acoustic, overpressure, temperature and heat flow fields as well as determining optimum design. Early concerns over using the existing MST for assembly of the entire vehicle led to the new Payload Changeout Room being used for erecting the Tank and Orbiter in addition to payload handling. This erection function requires a complex handling fixture on the PCR front to rotate the Orbiter or ET 90 degrees and lift it vertically 46 feet and then horizontally extend it 1.5 feet within a maximum tolerance of plus or minus one inch.

Considerable efforts were made during design to assure cost effective designs and to realize the maximum benefits from NASA experience. Basic facility design criteria were developed to provide a workable concept and budget cost estimate and essentially reflected a preliminary design solution. Optimization efforts, therefore, relied heav-

ily on initial designer studies to refine concept layouts as well as to identify potential cost drivers. Later cost reduction efforts centered around formal design reviews and Value Engineering studies. Efforts to directly tap NASA experience and supplement information from the Integrating Contractor have paid big dividends. Field trips by design groups to the NASA centers and direct involvement of Air Force liaison personnel at NASA centers in ongoing design have been the most effective methods.

This article has focused on the facility acquisition aspects of the Vandenberg AFB Shuttle Program from early concepts through design. The design phase will extend well into 1981. Construction started on the Launch Pad in January 1979.

The Shuttle Program has provided many civil engineering lessons so far. The major ones are summarized below.

**Planning and Budgeting**

- DOD inflation rates appear too low. Conservative industry rates should have been factored into the programming to avoid budget deficiencies.
- Early planning contingency reserves need to be very liberal with this type of R&D project. Requirements invariably increase and unforeseen requirements surface as program definition progresses.
- Key facility schedules are frequently squeezed between deferred appropriations and firm operational need dates. Therefore adequate management reserve time should be included in the schedules to absorb a reasonable amount of design breakage caused by criteria revisions and construction extensions resulting from change orders.

**Design**

- Design A-E should prepare the detailed criteria to prove continuity in facility concept development.
- Drawings in criteria documents should clearly distinguish between criteria and conceptual aspects to preclude concepts being taken for criteria.
- User criteria should emphasize system requirements versus design solutions to permit the A-E adequate latitude in design development.
- Early Value Engineering is essential. C&S

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# FY 1980 Professional and Technical Course Offerings Con't.

**CDC 61170, Services Supervisor**
Role of supervisor; Air Force publications; financial management; managerial functions; inventory and capital control procedures and mortuary affairs. These courses are being updated to include the following:

**CDC 61130, Apprentice Services Specialist**
Vol I, Introduction to the services career field; base linen control; site exchange; and bachelor and transient quarters operation.
Vol II, Operation of commissary and commissary store; and fundamentals of merchandising.

**CDC 61150, Services Specialist**
Vol I, Introduction to services: consumer advocate role; role of specialist; linen exchange systems; and site exchange.
VOL II, Commissary Operation: commissary organization and functions; requirements and requisitioning subsistence; receiving and warehousing operations; and issues and sales.
Vol III, Bachelor and Transient Quarters: Operations of front desk; billeting organization and functions; assignment policy; reports and procedures.
Vol IV, Mortuary Affairs: Organization and Functions; role of an escort; role of the mortuary officer/NCO; search and recovery; military funerals.

**CDC 61170, Services Supervisor**
Vol I, Introduction to Services Supervisor: role of a supervisor; financial management; managerial functions; inventory and capital control procedures; mortuary affairs, billeting operation.
Vol II, Commissary Operation, Managerial functions; inventory and capital control; budgets and reports; operation of complexes, and complex stores.

**CDC 62230, Apprentice Cook**
Role of the apprentice cook, food preparation, cooking, baking, and serving.

**CDC 62250, Food Service Specialist**
Role of the Specialist-Food Service Career Field; sanitation; and operation and maintenance of food service equipment. Food preparation and service principles of cookery; baking and cooking methods; serving food; and meatcutting and baking fundamentals. Flight feeding and food service accounting flight feeding systems and food service accounting.

**CDC 62270, Food Service Supervisor**
Management, supervision and administration of food service; sanitation, inspection and storage; career of food service equipment; and flight and missile feeding (under revision to include baking).

The following extension course is available to personnel needing meatcutter training.

**EC6115, Meatcutter**
A course in meat processing, operation and maintenance of meatcutting equipment; receipt and storage of meat and poultry; cutting and preparing beef; cutting and preparing veal, lamb and pork; wrapping, sealing, weighing and pricing retail meat items; and supervisory and technical meatcutting functions.

In summary, the Services Training School covers all aspects of the Services career field. The training provided contributes directly to both improving our readiness role and increasing the quality of life within our Air Force communities. Inquiries about resident or non-resident courses should be addressed to: 3440 TCHTG/TTMXF, Lowry AFB, Colorado 80230. Key Telephone numbers are:

| | |
|---|---|
| Branch Chief | AUTOVON 926-3211 |
| Training Development | AUTOVON 926-3211 |
| Course Supervisors (Services) | AUTOVON 926-4441 |
| Course Supervisors (Food) | AUTOVON 926-3178 |
| Career Development Courses | AUTOVON 926-4441 |

Highly qualified Food Service specialists and managers have visited nearly 500 Air Force bases since 1967 to assist in raising standards of service, achieving economy of operations and increasing the efficiency of dining hall operations. Their impact on dining hall operations truly represents the

# Image of Base Dining Halls

**by Capt Dennis A. Bossen**

Air Force bases throughout the world receive a unique, personal service from the Air Force Services Office (AFSO). This service helps appropriated fund food service operations to better serve their customers, and, in turn, better serve the mission of the Air Force. This people oriented service is provided by the 12 members of the US Air Force Food Management Assistance Team, an integral part of the AFSO.

The mission of the food teams and the mission of basic food service are extremely important for several reasons. The need for good food service is becoming increasingly apparent as the Air Force quest for people oriented service and products continues. Changes and improvements are noted every day in the civilian community—a community which now consumes from one-fourth to one-third of all of its meals outside of the home. The National Restaurant Association has estimated that nearly one-half of all meals will be consumed outside of the home by 1980. This has necessitated vast improvement and technical innovations aimed at the most important part of the business —people!

Military food service shares equally in this movement to provide efficiently operated and people oriented services because each element has an impact on the physiological, social and psychological needs of military people.

Food is important to the body to satisfy nutritional and energy needs, whether it be participation in normal ground feeding systems, or in preflight, flight or postflight feeding programs. Work cannot be done unless the required energy is there to physically make it possible. Food service plays an important part in our social lives as well because foods and food services often serve as the vehicle on which many social activi-

ties ride. What better place exists for airmen to plan or begin social activities than in the dining facilities? In addition, food has a proven satiety value and serves psychologically as a recognized relaxer and anxiety reducer. It is also a means of self-expression, creativity and livelihood for the food service workers.

The history of Air Force Food Management Assistance Teams is significant and begins, perhaps in 1955, when the Hoover Commission Task Force on Food reported to Congress that a disparity existed between military food services and their civilian counterparts, and that there was a need for organizational change. Because of this, several improvements in organizational structures and systems approaches were made. In 1967, based further on a DOD contracted study by the Logistics Management Institute, it was decided to form food management teams. DOD Manual 1338 10, DOD Food Service Program, and **AFR 146-2,** Food Management Assistance Team Program, provide the basic purposes and objectives.

Interested agencies gave consideration to Air Force food service training needs and found that a team of highly qualified military food service specialists and managers should be gathered to operate separately from all major commands. This unit was to operate as a part of the AFSO. On 9 June 1967, the Secretary of the Air Force gave authorization to organize the food teams. Teams were formed and travel began in July 1968 with a two-week visit to Dover AFB, Delaware, the first of nearly 500 productive trips to date to bases around the world.

The purpose and objectives of the food teams are to deal with assisting appropriated fund food service operations in raising the standards of service, achieving economy of operations, and increasing the efficiency of dining hall operations. The following items summarize the major mission elements of the teams:

- Review installation food service program documents, such as operational plans, financial plans and budgets to determine if food service requirements have been included.
- Instill food service management discipline in all responsible personnel with special emphasis placed on management, quality food production, merchandising of food items and services, customer acceptability and sanitation.
- Induce and stimulate professional pride in food service personnel.
- Evaluate and encourage application of standard and uniform policies and procedures.
- Provide training classes and on-the-job training to food service personnel as required at individual installations.
- Review the use of facilities, equipment, personnel, subsistence and other food service resources to obtain a valid evaluation of the installation food service program. Identify limitations that hamper accomplishment of objectives.
- Participate actively in an advisory capacity in the operation of the local food service program by working with food service personnel, demonstrating proper techniques in all phases of food service, and motivating food service personnel toward increased efficiency and effectiveness.
- Assist in the development of a patron education program to insure that personnel supported by a food activity understand the elements of the food service program.
- Evaluate the practical application of food service techniques learned through technical and on-the-job training, programs of instruction and through formal training.
- Provide information and demonstrate new developments in the food service and subsistence fields.
- Exchange, research and collect new ideas regarding food service for possible adoption and dissemination to all installations.
- Record observations that will provide a basis for follow-up actions to resolve problems beyond the control of the installation food service manager.

The officers and non-commissioned officers assigned to the teams have been selected on the basis of their food and human relations knowledge and ability. Each person also brings a particular specialty, which gives him the ability to assist in special areas such as field feeding, mobility, equipment, flight feeding, training, and all major functions of food service. Team resources are then assigned to travel based on the needs of a particular base.

The food teams visit bases at the request of the base commander or food service officer. Each year, bases are requested to submit their requirements for a Food Management Assistance Team visit (through their major command) to the AFSO. The food teams then establish the priorities for visits based on the greatest need, giving equal consideration to all commands.

Team visits generally involve pre-travel preparation to insure that materials and training will fit the installation needs, whether it be a small dining facility serving a handful of technicians or a large training base serving thousands of meals each day. The number of team members and days of visit will also be geared to the individual needs of the base.

The evaluation, assistance and training procedures begin immediately upon arrival at the base. Commanders are briefed as to what the team can and cannot do, and coordination is made with interested base activities. The airman customer is also contacted and is thoroughly considered throughout the visit.

When visiting a base there are two distinct but interrelated areas reviewed by the teams. The first area includes broad factors directly con-

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trolled by food service personnel: food production and presentation, application of standards, policies and procedures, training and motivation, personnel and financial management, use of facilities and equipment, sanitation, and administration. The second area includes the degree of understanding and cooperation that exists between food service and supporting functions which indirectly affects the accomplishment of the food service mission: civil engineering, commissary services, supply, procurement, medical and dietary functions, and the comptroller.

In order to identify which areas require more attention or training from food managers, the two larger areas are broken down into smaller ones via the use of AF Form 1038, Food Service Evaluation Record. The record provides a map for reviewing all areas of a food service operation and can be used by managers at all levels in upgrading their food service programs. This is the same form used by the Hennessy Awards Committee in selecting the outstanding food operations in the Air Force, a task also primarily carried out by food team members.

All topics covered by the evaluation record are important to the entire food service program because most are supportive or interrelated to other areas. There are several areas, however, that the teams feel food managers need to emphasize.

A good starting point is for managers to review the Air Force Worldwide Menu (**AFP 146-17**). These menus should be tailored to meet local customer desires. The need for advanced planning and exchange of information between food service personnel, commissary personnel and patrons, cannot be overemphasized.

Once the cooks have a good menu that meets the acceptance of patrons, budgetary restraints and nutritional requirements, the food must be properly prepared. The preparation of quality products is among the most important aspects of a dining hall operation. All other parts of the operation center around this process. Good food preparation, however, is not just cooking. It requires proper planning, use of recipe cards and food production systems, and the use of progressive cooking techniques to assure a fresh and attractive product.

The acceptance of the product can also be affected by the way it is presented and served. The most beautiful of products can become unacceptable if served poorly and an ordinary product can be made exciting with proper serving techniques. Good serving has been found to be affected by such things as the attitude of the server, display and garnishing of the product, and placement of the items on the serving line and the plate. These and other equally important areas are discussed fully by team members during their visits to base dining facilities.

In working with food managers desiring assistance, the teams do not inspect the operation. Instead, they work side-by-side with the managers to evaluate the operation, identify problem areas, and assist in problem solving. Managers and technicians are trained in numerous areas from human relations to food production.

Since a great majority of the technical problems are not shared directly with commanders and the major command, these elements are furnished vital information reflecting the state-of-the-art via a trend analysis. The teams compile analytical data and share it with the entire system. This provides persons filling vital management positions the information they require to function and improve.

Every effort has been made to select members for the teams who possess the traits of the Air Force's best supervisors. They, and other agencies sharing the goals of improved food and people oriented services, have made the findings of the 1955 Hoover Commission Task Force merely a part of history. These agencies have provided the necessary improvements recognized by the task force and base food service programs are now in the prestigious position of being food service industry leaders. E&S

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## 2nd Lt David Edmonds Named Winner of Kamenicky Award

2nd Lt David Edmonds was named the 1979 winner of the Kamenicky Award as the Outstanding Cadet in the civil engineering major at the United States Air Force Academy. He was on the superintendent's list for excellence in both academics and military training for seven semesters and was active with the Cadet Chorale.

Lieutenant Edmonds was one of 882 cadets to receive his diploma and commission in ceremonies at the Academy on 30 May 1979. After a year of graduate school at Columbia University under a Guggenheim Fellowship, Lieutenant Edmonds will enter undergraduate pilot training.

The Kamenicky Award is sponsored by the civil engineering officers of the Air Force. It memorializes a civil engineering graduate from the Academy, George W. Kamenicky, who died in Southeast Asia when his aircraft crashed after being hit by hostile ground fire.

# Chalk Talk

*...a synopsis of academic activity to assist personnel*

CES NOW SCHOOL OF CIVIL ENGINEERING--As a result of realignment within AFIT, the CES has been renamed the School of Civil Engineering. There is a subtle but important reason for this change and we'll be trying in the next several months to switch to SoCE.

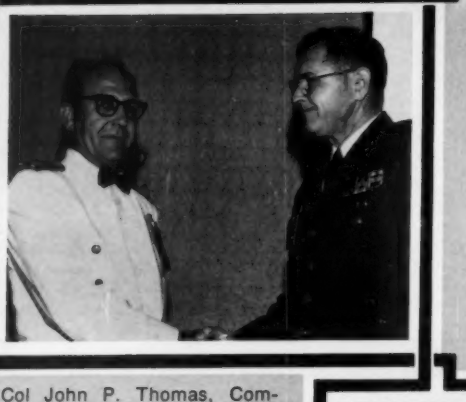
FIRE PROTECTION TRAINING PREREQUISITE CHANGES--Several significant changes have occurred in the past year pertaining to the prerequisites to enter various fire protection training courses at Chanute AFB, Illinois. Listed are the course numbers, titles and AFM 50-5/AFR 39-1 changes. C3ABR57130-1, Fire Protection Specialist: The physical profile minimums have changed to 111221. The minimum height and weight standards have been deleted. An SF 46 is now issued to each graduate of this course. All 5-Level Courses: The two year experience prerequisite has been deleted. C3AZR57150-3, Firefighter Rescueman: Seasonal dress uniform no longer has to be worn on the last day of training. All Courses: Foreign student English Comprehensive Language is now 70. (3340 TCHTG/TTMF 862-3320).

COMMANDER'S UPDATE BRIEFING--The School of Civil Engineering has developed an educational version of the Commander's Update Briefing. This version provides commanders with another option that can be used alone or in conjunction with the CESMET version which is described in detail elsewhere in this issue. (AFIT/785-4552).

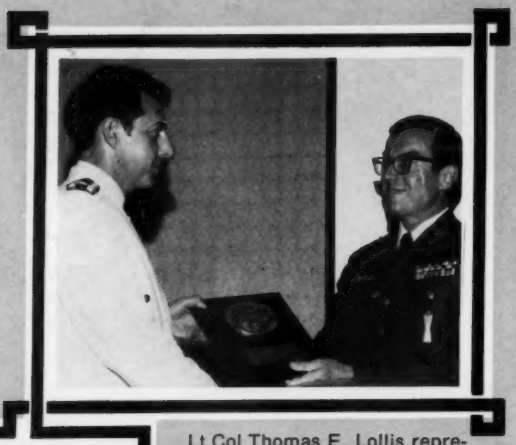
BILLETING MANAGEMENT COURSE--Students are requested to bring the following materials with them when attending this course: AF Form 515 plus backup forms, DD Form 1657, BEAMS extract, financial statement, NAF Capital Expenditure Budget, Facility Slides in color (if available), Customer Critique form, Information Packet, Training Programs, Occupant Responsibility Letter, Maid's Checklist, and a hand calculator. This material will be used to promote discussion and provide an exchange of information. (3440 TCHTG/TTMXF 926-3211).

RESTAURANT MANAGEMENT--The Community College of the Air Force awards eight semester hours credit toward an Associate Degree in Restaurant Management for completion of G3ABR62230, Food Service Specialist course. For more information, contact your Education Services Office. (3440 TCHTG/TTMXF 926-3211).

TROUBLESHOOTING--Are you scheduled to attend the Troubleshooting Electrical Power Generating Equipment Course (J2ASR54272 000) conducted at Sheppard Technical Training Center? Some advance preparation will enable you to acquire maximum benefit from this course. A review of basic math skills and your ability to interpret wiring diagrams will aid in obtaining course objectives. These are two areas that past students have had difficulties in meeting course requirements. (3770 TCHTG/CC 736-2067).



Col John P. Thomas, Commander, San Antonio Real Property Maintenance Agency, accepts Newman Medal from Maj Gen William D. Gilbert.



Lt Col Thomas E. Lollis representing the 52nd Civil Engineering Squadron, accepts Curtin Plaque from Brig Gen Clifton D. Wright.

MSgt Joseph A. Workman, 438th Civil Engineering Squadron, is presented Goddard Medal by John Ward, National Treasurer, SAME.

# SAME Honors Air Force Civil Engineers

Air Force Civil Engineers won distinguished awards and were named to various local and national offices within the Society of American Military Engineers (SAME) at the Society's 59th annual meeting in Boston in May.

Recipients of Air Force awards included: **Newman Medal: Col John P. Thomas,** Commander, San Antonio Real Property Maintenance Agency, San Antonio, Texas, in recognition of his outstanding contribution to military engineering. **Goddard Medal: MSgt Joseph A. Workman, 438th Civil Engineering Squadron,** 438th Military Airlift Wing, McGuire AFB, New Jersey, cited for his outstanding contribution to air base maintenance. **Curtin Award: 52nd Civil Engineering Squadron,** 52nd Combat Support Group, Spangdahlem AB, Germany, named outstanding Air Force civil engineering unit for 1978. Lt Col Thomas E. Lollis accepted for the squadron.

In other business, **Maj Gen William D. Gilbert,** Director, Engineering and Services, Headquarters US Air Force, was named incoming Vice President of SAME.

**John W. Ward, Jr** was reelected National Treasurer of the Society for 1979-80.

The following SAME post presidents accepted distinguished post awards: Col Sterling E. Schultz, **Panama City;** Col Sheldon J. Lustig, **Omaha;** and Col Jerry J. DeLuca, **San Francisco.**

Named as regional vice presidents were: **Col John P. Thomas,** Texas; **Lt Col Wayne Adelsperger,** Ohio Valley; and **Col Lawrence J. Munsie, Jr.,** Eastern.

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